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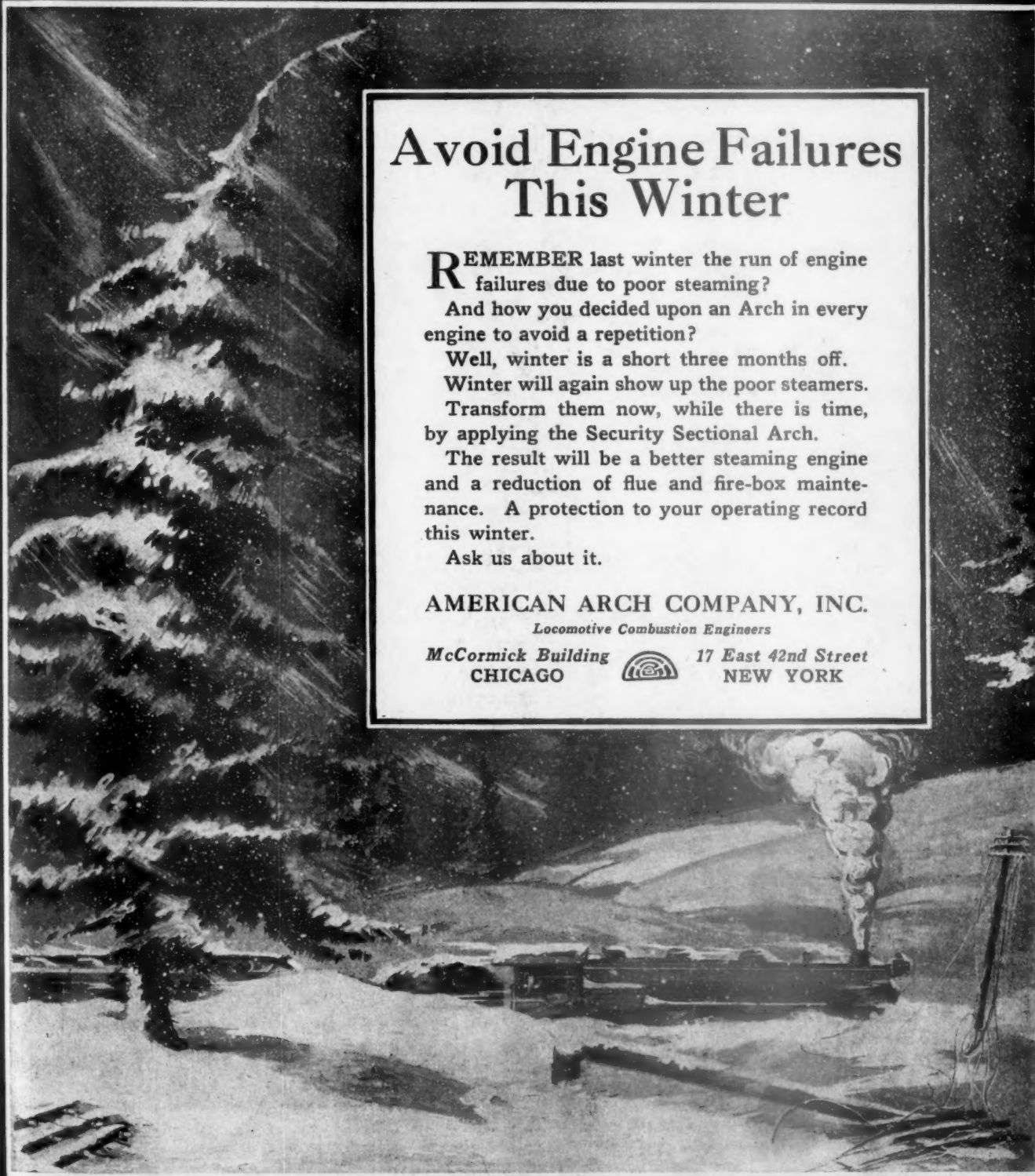
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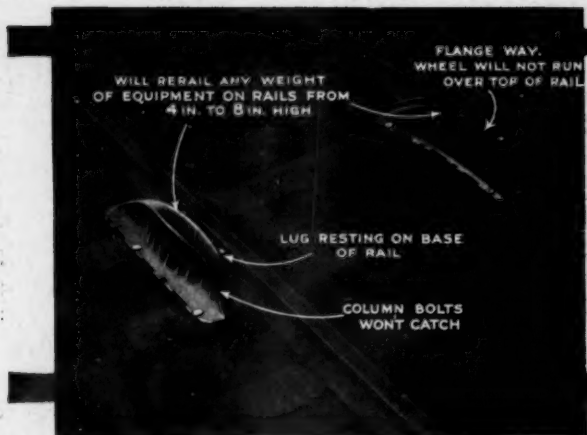
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LARGEST MANUFACTURERS OF CHAIN IN THE WORLD



EDITORIAL

Railway Age

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The total number of stockholders of Class I railroads for the calendar year 1921 was 752,967, according to the Preliminary Abstract of Statistics of Common Carriers just issued by the Interstate Commerce Commission. This was an increase of 43,172 over the number reported by the commission for the year

Increase in Railroad Stockholders

1920. It included 342,258 in the Eastern district, 73,187 in the Southern district and 337,522 in the Western district. While at first glance an increase in the number of stockholders in a business might seem to indicate an increase in its popularity as an investment, it is probable that a different explanation would prove truer to fact in this instance. The number of railroad stockholders has been increasing for several years, as it was somewhat over 600,000 before the war, but since there has been very little new stock issued in that time the changes in the stockholders' lists must mean that former owners have sold part of their holdings and they have been taken—generally at lower prices—by a larger number of new purchasers whose average holdings are less. The wide distribution of railroad securities is a good thing from many points of view, but the 1921 statistics represent conditions in a year of depression and great uncertainty and it is very likely that a different condition is being substituted as the financial condition of the railroads has improved during 1922. Recent statements of the number of stockholders of the Pennsylvania have shown a decrease.

The Union Pacific and Burlington have been the first railways to make public the agreements they have negotiated with their shop employees following their defeat of the striking shop crafts' unions. The managements and the employees' associations on both these railways have agreed to reclassifications of shop employees which recognize much more clearly than those previously in effect the differences in the skill required to do the different kinds of work for which the men are paid. The wage scales fixed give the most skilled men higher pay than the wages fixed by the Railroad Labor Board, while in some cases relatively unskilled labor is to receive wages lower than those awarded by the Labor Board. It seems not improbable the result will be that on both railways the shop employees as a whole will receive as high, or even higher, average wages than those awarded to shop employees by the Labor Board. On the other hand, the new scales of wages place such a premium upon the acquisition and use of superior skill that it seems certain they will have a stimulating effect upon the work of all the employees and in consequence will increase the efficiency of all the work done. The ultimate result probably will be that the employees as a whole will receive higher average wages and that at the same time the railways will secure a larger amount of good work at a reduced total cost. The Burlington and Union Pacific seem to have made good use of their victory in the strike—a use that will be beneficial both to their employees and to the railways. It will be interesting to see what plans for dealing with labor matters are adopted on other railways.

New Agreements with Shop Employees

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It is in periods of heavy traffic such as this that the inadequacy of facilities becomes most apparent. This condition is, of course, more pronounced at some points than at others. In general the terminals are the first points of congestion, although in many cases line capacity is the limiting factor. In

Equalizing Traffic and Facilities

either case facilities which may handle a normal traffic without delay are becoming blocked with the overload, the effects of which may extend far beyond the limits of the division affected if not remedied quickly. The problem of the operating officer now is to distribute the work to be done among the facilities available so that each may be used to the best advantage and an excessive load at any one point may be avoided. This involves closer supervision than is normally exercised. It may call for the rearrangement of switching operations between terminals and other expedients to reduce the danger of congestion in order that traffic may be kept moving.

With definite prospects of the railroads being able, and indeed compelled, to fill some of their machine tool needs in the immediate future, it is in order to urge a more general use of the engineering service offered by progressive machine and tool manufacturers. This is a valuable service, never fully utilized in the past. It is offered gratis by the manufacturers who naturally know best what can be accomplished with their respective machines and are anxious that these machines shall prove of maximum value. Few railroad shops are operated on as efficient a production basis as is possible or desirable, and industrial engineers with their extensive and intensive knowledge of modern machine methods, can be of great assistance in an advisory capacity. It is advisable where new machines are being bought to send blueprints, or work details, to the manufacturer who can then make a study of the requirements and recommend the tooling arrangement, or method which will give the most satisfactory results. Not only should advice be sought in the case of new tools, but every progressive machine manufacturer will be glad of a chance to speed up the work on his older machines already installed, retooling them so that they can earn more. Recently a prominent manufacturer of turret lathes sent a practical man to eight or ten different railroad shops and found that many of his machines were running on too small work to be efficient. In practically none of the shops were these machines producing more than 50 or 60 per cent of what they should. The railroad master mechanic or machine shop foreman at each shop had so many irons in the fire that he could not specialize on machinery and, as a result, the operators ran the machines and tooled them in any way they saw fit with no check on the performance. Admitting that certain machine shop operations are too simple to require special tooling arrangements, the fact remains that a considerable proportion of the machinery, especially in large shops, is capable of operation on a highly productive, efficient basis and in these cases it will pay the railroads to utilize the engineering service of machine tool manufacturers to the fullest possible extent.

Manufacturers' Engineering Service

This is a valuable service, never fully utilized in the past. It is offered gratis by the manufacturers who naturally know best what can be accomplished with their respective machines and are anxious that these machines shall prove of maximum value. Few railroad shops are operated on as efficient a production basis as is possible or desirable, and industrial engineers with their extensive and intensive knowledge of modern machine methods, can be of great assistance in an advisory capacity. It is advisable where new machines are being bought to send blueprints, or work details, to the manufacturer who can then make a study of the requirements and recommend the tooling arrangement, or method which will give the most satisfactory results. Not only should advice be sought in the case of new tools, but every progressive machine manufacturer will be glad of a chance to speed up the work on his older machines already installed, retooling them so that they can earn more. Recently a prominent manufacturer of turret lathes sent a practical man to eight or ten different railroad shops and found that many of his machines were running on too small work to be efficient. In practically none of the shops were these machines producing more than 50 or 60 per cent of what they should. The railroad master mechanic or machine shop foreman at each shop had so many irons in the fire that he could not specialize on machinery and, as a result, the operators ran the machines and tooled them in any way they saw fit with no check on the performance. Admitting that certain machine shop operations are too simple to require special tooling arrangements, the fact remains that a considerable proportion of the machinery, especially in large shops, is capable of operation on a highly productive, efficient basis and in these cases it will pay the railroads to utilize the engineering service of machine tool manufacturers to the fullest possible extent.

Railroads equipped with automatic block signaling should be able to check the efficiency of their signal systems under the heavy traffic conditions which will prevail for some time. Not all automatic block signals are located to the best advantage and some are not maintained efficiently. A signal protecting a busy passing track switch may be so far out as to cause repeated stops and delays to following trains that could be eliminated by the installation of another signal or the relocation of some of them. At certain stations the relocation of a signal or the installation of a starting signal will save considerable delay in getting trains moving. On one road the introduction of three additional signals for upgrade traffic on a long hill increased the capacity of that section of track sufficiently to remove a limitation to the operation of the entire division. Operating officers and signal engineers may now well co-operate in studying the causes of numerous train stops and delays, especially around water tanks, coal chutes, passing tracks and on grades. Slight changes in signal controls or locations may produce economies.

Checking Signaling with Traffic

Reports from various sources show that the Brotherhood of Railroad Trainmen is trying hard to get all the yardmasters and assistant yardmasters of the railroads to become members solely of the trainmen's union. W. G. Lee, head of the Brotherhood of Railroad Trainmen, is one of the ablest and fairest labor leaders in the United States. He has insisted always upon the members of his union faithfully carrying out their agreements with the railroads. But the yardmasters ought not to belong to the Brotherhood of Railroad Trainmen. If they are to belong to any organization it should be one of their own. The yardmaster is a supervisory officer who directs the work of trainmen. Neither he nor any other officer can issue and enforce orders without the way in which he exercises his authority sometimes being questioned and resented by his subordinates. A yardmaster who belongs to the Brotherhood of Railroad Trainmen is subject to discipline by that organization. This means that he is subject to discipline by the very men whose work he directs. He is their superior in the yard and they are his superiors in the lodge room. This creates a condition of affairs that is bad for all concerned. It can hardly fail to interfere with the yardmaster performing his duties with fairness and firmness and an officer who cannot thus perform his duties cannot perform them efficiently. An officer who cannot perform his duties efficiently cannot serve his railway well and will imperil his chances of promotion. The railways should treat their supervisory officers so that they will have no incentive to belong to unions composed of their subordinates; and supervisory officers who desire to serve their companies well and at the same time further their own interests will keep out of unions composed of their subordinates.

Yardmasters and the B. of R. T.

In a letter to the editor, General Lansing H. Beach, chief of engineers, United States War Department, presents some specific criticisms of an editorial appearing in the *Railway Age* of May 27, 1922, entitled "The Needs of Water Transportation," which called attention to the large expenditures being made by the railroads in fulfilling the requirements imposed in bridges crossing navigable streams. The specific case cited in the editorial was a 365 ft. lift span provided in the new superstructure of the Cincinnati Southern bridge, which, according to the evidence available, will probably never serve any useful purpose. General Beach calls attention to the fact that the provision for a movable span is one imposed by law and that it is unjust to criticize the War Department or any of its officers for insisting upon the fulfillment of requirements which they have no authority to modify. The facts presented in General Beach's letter have been confirmed in full in a letter received from T. C. Powell, vice-president of the Erie, who was vice-president of the Cincinnati, New Orleans & Texas Pacific at the time that the negotiations concerning this bridge were under way. Mr. Powell testifies also to the spirit of fairness manifested by General Beach and his assistants in all their dealings with respect to this structure. It is, therefore, clear that the editorial in question was in error insofar as it directed any criticism at the War Department. However, the fact remains that the railroad was required to make a large expenditure for no useful purpose. There are many other places in the United States where railways have provided movable spans over streams that have been declared navigable, but where no navigation exists and while, no doubt, the War Department in these cases places an interpretation on the law, such that only the very minimum requirements are imposed, it is extremely difficult for the railroads to obtain the necessary federal legislation to relieve them of the needless expenditure. However, relief is now in sight from a rather unexpected source. The great expansion of highway construction and improvement is causing the shoe to pinch on another foot and because public pressure is being brought to bear a number of streams which have long borne the stamp of navigable waters, because of mythical transportation in the dim past, have been removed from the list.

Highway Crossing Protection

WITH THE steady increase in the number of licensed motor vehicles operating on the highways from 4,983,340 in 1917 to 10,608,128 on July 1, 1922, the railroads have an increasingly difficult problem to protect the occupants of the automobiles as well as their own passengers and employees at the more than 250,000 highway grade crossings in the United States. In 1920 1,201 occupants of automobiles were killed in collisions with trains at grade crossings, while during the first nine months of 1921 873 occupants of automobiles met death in grade crossing accidents as compared with only 99 in all other classes of vehicles in such accidents. In Canada approximately 58 persons were killed and 142 injured in the 85 automobile accidents at railroad crossings involving fatalities during 1921. Another serious phase of this problem was emphasized recently by the derailment of a passenger train on the Minneapolis, St. Paul & Sault Ste Marie at Annandale, Minn., by a motor truck, resulting in the death of the two men on the truck and six passengers and two railroad employees.

Highway Crossing Protection

With the continued expansion of manufacturing facilities, especially for cheap cars, a glance five or ten years into the future will indicate a dense highway traffic, those interested in which, if organized, can influence legislation on the grade crossing question that may be very detrimental to the interests of the railroads. There is already a tendency among state legislators to introduce bills requiring the roads to install devices for the protection of the highway traffic. The majority of the automobile traffic may be considered more of a luxury than a necessity and should pay its share of the new protection demanded. It is time that the railroads of the country should co-ordinate their efforts to counteract this tendency to require the railroads to stand the expense of all such proposed protection. Some of the problems involved in the location, installation and maintenance of automatic highway grade crossing protection are explained in an article elsewhere in this issue which serves to emphasize the importance of the railroads organizing to combat the demands of the millions of automobile drivers.

Bridges Over Navigable Streams

In a letter to the editor, General Lansing H. Beach, chief of engineers, United States War Department, presents some specific criticisms of an editorial appearing in the *Railway Age* of May 27, 1922, entitled "The Needs of Water Transportation," which called attention to the large expenditures being made by the railroads in fulfilling the requirements imposed in bridges crossing navigable streams. The specific case cited in the editorial was a 365 ft. lift span provided in the new superstructure of the Cincinnati Southern bridge, which, according to the evidence available, will probably never serve any useful purpose. General Beach calls attention

The Changing Problem of Railway Accidents

COMPLETE STATISTICS regarding railway accidents in 1921 which have just been issued by the Interstate Commerce Commission confirm the conclusion drawn by the *Railway Age* from preliminary statistics issued some months ago. They show that on the whole the accident record made by the railways in 1921 was the best in their entire history. The Commission in its report says: "The number of fatalities resulting from railway accidents of all kinds, industrial included, in 1921 was less than for any other year since 1889. This is a remarkable showing when it is considered that the annual transportation service, measured in ton-miles, was about five times as large at the end of this period as at the beginning."

The total number of persons killed in 1921 owing to railway accidents of every kind was 5,996. The corresponding figure for 1920 was 6,928, and for 1919, 6,997.

Of this number 116 were passengers and persons carried under contract. This compares with 169 in 1920. The total number of employees killed in train and train service accidents in 1921 was 1,032. This includes not only employees at work, but those who were not on duty and even those who were trespassing. The corresponding figure for 1920 was 1,855. The total for employees and passengers declined from 2,024 to 1,048. In proportion to the total business handled, the accident record of 1920 was the best up to that time, and yet it will be seen that the fatalities to passengers and employees due to train operation in 1921 were only 57 per cent as great as in 1920. This fact helps to give an adequate idea of the increase in the safety of railway operation which has occurred.

But the problem of preventing or at least reducing accidents on railroads is far from solved. While the railways have been so greatly increasing the safety of their own operations, other developments over which they have little or no control have been tending to nullify their efforts to reduce the sum total of accidents. Within recent years the great increase in the number of automobiles crossing the railways on highways has been causing a formidable increase in highway crossing accidents. The number of people killed at highway crossings in 1921 was 1,702, or 554 more than the total fatalities to passengers and employees due to train operation. The Interstate Commerce Commission in its annual accident report says: "It will be noted that of all casualties sustained at grade crossings in 1917, 59 per cent involved occupants of automobiles and motor trucks, as compared with 80 per cent in 1921."

The railways of the United States in the months of June, July, August and September, 1922, carried on throughout the country a "National Careful Crossing Campaign" to try to reduce accidents at highway crossings. They placarded the entire country, especially at highway crossings, with warnings to automobilists to be careful when crossing railway tracks. The total results of this campaign are not yet known. Such information as is now available indicates, however, that the number of automobile accidents at highway crossings did not decline, and may actually have increased while this campaign was being carried on. The Pennsylvania Railroad System reports that in June, July and August, the first three months of the campaign, the number of casualties at its highway crossings increased 30 per cent. There were 85 automobile accidents at Pennsylvania System highway crossings in the three months in question. They caused the deaths of 56 persons, which was almost one-half as many as the total number of passengers killed on all the railroads of the United States in 1921.

There was an increase in 1921 in still another class of accidents. The total number of trespassers on railway property killed was 2,166 in 1920 and 2,481 in 1921. Prior to

the war the number of trespassers killed annually averaged about 5,000. During and immediately following the war the number was greatly reduced, apparently owing to the fact that there was almost no unemployment in the country. The increase in the number of trespassers killed in 1921 is attributed by the Commission mainly to increase in unemployment due to business depression. The number of men who "beat" their way on the railways from place to place in periods of depression always is greater than at other times.

The facts about railway accidents indicate that the actual operation of the railroads themselves has been made so much more safe that the great problems with respect to accidents have become those of educating or compelling people not to trespass upon their properties and to cross them on highways with reasonable care. In the solution of these problems the railways must have the co-operation of public authorities and the organizations of automobile manufacturers and users.

Britain Succeeds Where America Fails

THERE IS PEACE and good feeling between labor unions and railway managements in Great Britain. This condition obtains in spite of the readjustments in wages which have been brought about in Great Britain as well as in the United States. Why should England have succeeded where we have failed?

One of the most obvious reasons is the sliding scale of wages. This plan is a product of the war period and provides, first, a basic wage which is not subject to change and, second, a substantial bonus which is increased or decreased at a predetermined rate with every increase or decrease in the official index number of the cost of living. The advantage which this method has over ours is plain. As the cost of living fluctuates continually, with our lack of provision for automatic adjustments of wages, we may expect either the railroads to be asking for wage reductions or the unions to be demanding increases most of the time. Consequently, we may look forward to more or less constant friction between the railroads and at least some of their employees. The British are to be congratulated that they have practically done away with controversies of this character.

Another institution on British railways which, although of recent adoption, has already proved its value in promoting cordial relationships, is the railway council. Under the provisions of the Railways Act of 1921 there is at least one of these councils, comprised equally of representatives of employees and managements, on each railway. Subsidiary to these councils are district councils and local committees, the personnel of which is similarly made up. The primary function of the council is the adjudication of disputes between employees and the railway companies, and it has already proved its value as a point of contact between the officers of the railways and their men. Moreover, the councils and committees seem to have awakened the interest of employees in the efficient operation of the railways and deliberations have not been confined solely to matters of wages and working conditions, but have included methods for increasing efficiency and building up traffic as well.

The provision for local committees, district councils and railway councils was not forced upon the railways or the unions from any outside agency, although their establishment has been required by law. On the contrary, the railways and the three operating and traffic department unions, viz., the National Union of Railwaymen, the Association of Locomotive Engineers and Firemen and the Railway Clerks' Association, agreed among themselves upon the formation of these bodies and their agreement was incorporated into the law of the realm.

The points which have been mentioned here about the

British method for dealing with the railway labor problem are only the most obvious and outstanding, yet they should be sufficient to awaken the interest of any railway officer who is not satisfied with labor conditions in this country and who is casting about for methods of dealing with the problem which have proved successful elsewhere.

Reduced Rates for Commercial Travelers

IT WOULD BE difficult to characterize with moderation the request made of the Interstate Commerce Commission last week by the organizations of commercial travelers for a discount of $33\frac{1}{3}$ per cent in passenger fares, were it not for an appreciation of that fairly common aspect of human nature, particularly associated with the calling of the salesman, which so frequently leads men to ask for more than they expect to get in order that they may be better satisfied if the request is granted only in part.

We are inclined to believe, however, that very clever salesmanship would be required to sell to the commission or to the public the idea advanced by the witnesses before the commission who, on behalf of 676,000 commercial travelers, asked that the railroads be ordered to sell to any one willing to advance \$66.67 at one time a book of coupons good for \$100 worth, of passenger or baggage transportation during the next year.

Less opposition will undoubtedly be expressed on the ground of discrimination to the proposal of the representative of the American Hotel Association that the potential customers of its members be accorded the $33\frac{1}{3}$ per cent discount for buying as little as \$50 worth of coupons at one time and submitting to the formality of being identified by photograph and signature, because more people would naturally see its possible advantages to themselves, although it would have an even greater effect in railroad revenues.

A good many laws have been placed on the state and federal statute books because in the old days railroads used to pay rebates to large shippers to keep them from sending their freight by some other road that would rather haul the freight for less than the regular rate than not haul it at all, and it is easy to imagine the howls of protest that would be incited by a proposal to allow a rebate of $33\frac{1}{3}$ per cent today to all shippers who paid a freight bill of say \$1,000 at one time. It would be strange logic that would expect an order that the same thing be done on a smaller scale from the regulating body created to administer the same laws that were directed against the former kind of discrimination under authority of an act of Congress.

It is, of course, perfectly true that railroads formerly issued mileage books at reduced rates for the benefit of the commercial travelers and it was done more or less voluntarily. That fact, however, constitutes no more valid an argument for their being required to resume the practice on a nationwide scale than would be a contention by the Standard Oil Company that railroads should be required by law to pay it rebates. Chairman Fox of the Central Passenger Association testified before the commission that mileage books had their origin as far back as 1868 in a concession offered by the freight departments of the railroads to shippers in the same way that they used to give annual passes to favored shippers. After concessions in freight rates were made illegal the railroads also sought to get rid of the concessions still made to a limited extent to a class of travelers and they were only freed of the practice when the Railroad Administration had put an end to competition during the war.

It is also true, as contended by the commercial travelers, that railroads make lower rates for carload freight than for smaller shipments and that they make special fares at a

discount from the regular rates for conventions, excursions, tourists and commuters, but there is a difference in the character of service rendered for such rates which does not exist between the service rendered to a commercial traveler or any other purchaser of a mileage or discount rate coupon book and that furnished the purchaser of an ordinary one-way ticket. The reduced rates accorded for carload freight and for special classes of travel may be justified on the basis of both the cost of the service and the value of the service. It costs the railroad less to handle shipments in carload lots than it does to handle a multitude of small shipments; it costs less to handle passengers in special suburban trains, often crowded, in the way that commutation traffic is handled, than it does to handle ordinary traffic on through or branch line trains, and it costs less to carry crowds of people to a convention or on an excursion that is planned for in advance than it does to run trains for the ordinary day to day travel for which schedules are maintained. Similarly, the purchaser of a special reduced rate ticket receives a less valuable or less desirable service than does the passenger who pays the standard rate, because the service for which he pays a reduced rate is usually restricted to certain dates, trains or destinations, but they tend to stimulate travel by offering a somewhat less desirable service as a by-product to those who could perhaps not afford or who would not care to pay standard rates for the regular service.

That they represent less of a concession than is desired by the commercial travelers is indicated by the fact that these "discount" rates which the commercial man points to are not satisfactory to him. The excursion ticket or the convention fare good on certain days is available to him and he sometimes takes advantage of it, but *he wants something more*. He wants to travel when he will and where he will at a reduced rate. While he contends that the reduction he seeks is justified on the wholesale principle, he is not asking for a wholesale service. His purchase of a mileage or coupon book ticket to cover exactly the same service that is given the ordinary passenger would not represent a wholesale transaction. It would represent merely payment in advance for a number of retail transactions yet to be completed and the interest on his advanced money would be easily eaten up by the additional cost of printing, collecting and accounting for his coupons.

Averaging approximately 50 miles a day, for which at the regular fare of 3.6 cents a mile the cost would be \$1.80, the commercial traveler is no more entitled to wholesale rates for his transportation than are his customers entitled to wholesale prices or freight rates based on the aggregate of the goods sold by the traveler on his entire trip.

It is very easy to claim and somewhat difficult definitely to disprove, that a $33\frac{1}{3}$ per cent or any other reduction in passenger fares would stimulate travel. It cannot be denied that any reduction would have at least some *tendency* in that direction, but the fact remains that there must be some point below which a reduction could not possibly pay. The question is whether a given reduction would cause enough more people to travel to make up for the loss in revenue from those who are now traveling. If the railroads believed it would, it would not be necessary to ask them to reduce rates. Those who say that they would travel on railroads more if rates were lower frequently forget that the first effect of a rate reduction would be to cut down the revenues now being collected. In fact, the chief witnesses for the commercial travelers at the hearing were sure that the railroads would more than get back any loss in revenues while admitting they had no figure in mind as to the amount of that loss.

The contention that business houses would send out more traveling men if the fares were lower attaches a rather magnified importance to the amount of money involved in the passenger fare as compared with the much larger other

factors. It is not to be presumed that a house would pay a large number of additional salaries, together with hotel bills and other expense accounts, to send out men at a time when for various reasons merchants are curtailing their buying, merely because the passenger fare is reduced 60 cents a day. Yet it requires no stretch of the imagination to foresee that most people who make even a single round-trip as far as Chicago to New York and return would buy a coupon book if it were available on the terms proposed at a rate $33\frac{1}{3}$ per cent less than they now pay.

The commercial travelers often claim to perform an important service as indirect freight solicitors for the railroads, but if allowed to have their way they would prove to be rather expensive as passenger solicitors.

Heavy Electric Traction

THE HEAVY ELECTRIC traction committee of the American Electric Railway Association presented a report this week at the annual convention of that association. The report was of particular value to everyone concerned because it carried one step farther the work of compiling the available data on the subject of heavy electric traction. The report consists of a chart showing the growth of electrified track and of electric locomotive tonnage in the United States and Canada, a list of foreign electrified railroads with data covering the kind of equipment used, and a bibliography on heavy electric traction. The bibliography was originated by the Association of Railway Electrical Engineers and has twice been revised and brought up to date by the A. E. R. A. In fact these two organizations should have the credit for doing more than their share of the association work on this subject during the past few years and for being the only ones to effect any sort of co-operation. The following statement included in the A. E. R. A. report is particularly noteworthy:

"The question of general co-operation in the study of heavy electric traction has been taken up with the various technical organizations which are actively interested in the several aspects of electrification. Your committee did not have in mind any premature attempt at standardization or discussion of questions which might embarrass the managements of electrified railroads or of railroads contemplating electrification, but did suggest a central organization to co-ordinate the work of studying electrification problems and of collecting information, in order to avoid duplication of effort.

"While many of the organizations with whom the matter was taken up expressed interest in the proposal, and while all agreed in the value of co-operation, it now seems evident that if such a movement is to be successful it should be under the leadership of the steam railroads."

All of the following associations are interested in the subject of heavy electric traction: The American Institute of Electrical Engineers; the American Society of Mechanical Engineers; the Mechanical Division of the American Railway Association; the American Railway Engineering Association; the American Electric Railway Association; the International Railway Congress; the Association of Railway Electric Engineers and the National Electric Light Association. Practically all of these organizations are dealing with the subject independently and in some cases there has been much duplication of effort. As a whole, these organizations include a wide variety of interest and afford an unusual opportunity for compiling complete information on heavy electric traction. What is needed is leadership. Petty jealousies must be forgotten.

The A. E. R. A. committee in its statement has made an excellent suggestion with a generous spirit and has put the matter directly up to the steam railroad men. Is there any better way than for A. R. A., Division V, Mechanical, and the A. E. R. A. to get together and arrange a plan by which the various societies can co-operate. It is entirely possible that all of the associations would not agree to such affiliation, but if only a few collaborate, much duplication of effort will be eliminated and all phases of the work can be studied intensively.

Letters to the Editor

A Bonus System for Train Service Employees

CENTRAL STATES

TO THE EDITOR:

To promote efficiency in train service the following plan for a bonus system was suggested some time ago:

Pay to engine and train crews in productive service, a bonus on a minute basis at a pro rata rate for all time less than the established zero time (the maximum time before overtime commenced, based on a speed of $12\frac{1}{2}$ miles per hour) for each class of service. Dead-heading and light sections are not to be governed by this plan. In computing, the total time on duty will be considered, and if less than the established minimum, payment will be made at pro rata rate on a minute basis for the time on duty less than the minimum.

To establish the time from which to figure, it will be necessary to classify the service as between fast freight, slow freight and local trains. For fast freight the time limit will be the minimum schedule from the time a train is due out of the initial terminal to the time of arrival at the final terminal, directions to be separated if necessary on account of differences in schedules of fast freights because of loadings. In slow freight service, use the time after which overtime is paid. In local service, the time limit will have to be determined from a study of the conditions peculiar to the division adopting the plan.

This plan will (1) expedite the movement of locomotives out of the roundhouse, and to and from trains at initial and terminal yards; (2) reduce materially the delays on account of engine and car failures; (3) speed up the movement of trains on the division, and increase the gross ton-miles per train hour; (4) reduce the number of crews and engines in service, making possible a greater service by more experienced men; (5) reduce the overtime expense and increase the earning capacity of men in this service; (6) increase train tonnage; (7) maintain fast freight schedules.

To illustrate, on a certain division of 134 miles the fastest schedule of fast freight is 6 hr. 29 min. eastbound. With this plan a train crew handling a fast freight and on duty six hours would be paid a bonus of 29 min. In slow freight, overtime is paid after 10 hr. 40 min., so that a crew on duty 10 hr. would be paid 40 min. bonus. The same would apply in local service after the time limit was established.

To show just how this should work out in slow freight service, note the following: A crew going on duty at 7 a. m. and off duty at 5:40 p. m. would not be paid a bonus. If off duty at 7:40 p. m. there would be two hours' overtime at penalty rate, which in the case of an engine crew would be \$4.70. If the crew went off duty at 3:40 p. m. a bonus of two hours pro rata would be paid which would be \$3.14. The difference between the two would be a saving of \$1.56 to the road while it would also be an inducement for the men as they would have to work four hours to get \$1.56, or about 39 cents per hour. On a basis of 20 trips per month, this would reduce the working time of a crew about 40 hr. per month, giving them a chance to make two or three more trips and increase their earnings accordingly, and also more time at home while reducing the time away from home.

On a basis of 250 trains per month, each saving two hours and a charge of \$15 per engine hour, the saving on account of engine hours would be about \$7,500, not including that due to decreased yard delays and improved time in freight movement, increased car miles per day or the advantage of

a more nearly maximum train loading, with a corresponding decrease in the aggregate number of trains run.

On a basis of a saving of 30 min. per train for 500 trains per month, the bonus for engine crews would cost about \$392 and on the same basis the saving in engine hours, based on engine rental per hour, would be about \$3,750 per month, or a net saving for engines and crews of \$3,358. The bonus to the train crews on the basis of 30 min. to the engine crews would be about \$461, which would leave a net saving of \$2,897 per month.

OPERATION.

The Needs of Water Transportation

WASHINGTON, D. C.

TO THE EDITOR:

I noted your editorial, "The Needs of Water Transportation," on page 1209 of your issue of May 27, 1922, at the time the paper appeared, but have, however, been prevented from writing to you earlier in regard to the matter. I have no reason to believe that you intended to do an injustice to myself or to the department which I represent, but it is nevertheless a fact that you have done so when you charge us with requiring other people to spend their money unnecessarily. I note your particular expression, "this attitude is frequently manifested by the War Department in its control over railway crossings of navigable streams. The building of new bridges, or the reconstruction of old ones, usually calls for extravagant requirements as to the clear width and height of channel openings, with apparently no effort to balance the pecuniary advantage to be derived by the existing or potential river transportation, with the enormous burden placed upon actual and thoroughly established rail transportation."

The case of the Southern Railroad bridge over the Ohio river at Cincinnati which serves as the text of your editorial, is one where it would have been better, in justice to those concerned and for your paper's reputation for accuracy, if you had ascertained the facts before issuing the statement which you have made. You say that the requirement in regard to the drawbridge "was made in spite of the fact that there is no record of the swing span ever having been turned following the test made at the time of its completion 45 years ago." It happens that I am personally acquainted with all features of this case, as I was the division engineer at Cincinnati, having supervision over the Ohio and its tributaries at the time the Cincinnati Southern Railroad first took up the question of remodeling its bridge.

The requirement to which you object concerning the drawbridge is one imposed by law, under the Act of Congress approved December 17, 1872. When the officials of the Cincinnati Southern presented their plans they were told that the requirement for the swing span was obsolete and in our opinion no longer necessary in the interests of navigation, and that we would do what we could to assist them to secure legislation repealing it or at least waiving it in their case. Their reply was to the effect that the bridge in its then present condition was a great hindrance to the traffic of the road and that it was more important to them to make their plans immediately and proceed with their work at the earliest possible date rather than to wait for legislation before making their plans even if they should save some money on the bridge, as the saving on the bridge would not compensate them for the loss due to the delay in the time.

You will notice that the law requires a swing bridge giving two clear openings 160 ft. each, the swing bridge being practically the only type of opening in a large bridge which was in existence at the time the Act was passed. When the engineer of the railroad company stated that another type of bridge would be more economical than the swing span, owing to the difficulty of enlarging the top of the turn-

table pier, or entirely rebuilding the pier, we told him that we believed the War Department would consent to another form of construction and permit the bridge to be built in any way that was more economical to them, provided the clearance called for by the law was maintained. After this statement to that effect the company modified its plans for this portion of the bridge and adopted the lift span as more economical and practical. No difficulty was experienced in obtaining the consent of the War Department to this change. I might add that at the hearing certain prominent vessel interests asked that the piers be changed when the bridge was rebuilt to which request we declined to accede on the ground that the expense to the railroad would be greater than the existing or prospective commerce justified.

I feel that your editorial has done not only the engineer department of which I am at the head, but myself, personally, a great injustice. I feel, however, that it was written on superficial knowledge without taking the pains to ascertain the facts. I am sure that the whole truth of the case completely absolves both myself and the department which I represent, from "the spending of other people's money . . . all too lightly."

LANSING H. BEACH,

Chief of Engineers, United States War Department.

The Santa Fe Reading Rooms

ON SANTA FE LINES

TO THE EDITOR:

In the *Railway Age* of September 9, page 455, I find these words: "There is unquestionably something wrong seriously in the industrial and transportation world today. No one will deny this." Following this you say: "We have suggested that conditions on the railways might be improved substantially through the development of something corresponding to the personnel departments that have given such an excellent account of themselves in certain of the larger and more progressive industrial organizations."

This conception has been carried out on the Santa Fe system, as originating in the active brain and warm heart of the late E. P. Ripley and most cordially supported by his successor and all his staff, in the widest and broadest and largest method of operation.

As you know, but seem at present to have overlooked, we have 30 buildings on the Santa Fe, where every comfort is provided for the employee, and where he is surrounded by educational influences.

We have invested close to a million dollars in this enterprise, which has for its object the closing of the gap between the official and the employee, and awakening aspirations towards the true, the beautiful, and the good. The librarians or caretakers of these reading rooms are taken from the ranks of the company, and have an intimate understanding of a railroad man's life and work.

The employee has the privilege of ordering books for his own private library which are delivered to him free at publisher's rates, or which may be added at once to the shelves of the reading room for his use and that of his family.

During the season entertainments of all kinds—musical literary and educational—are held in these reading rooms, for which no charge is made, and which bring the employees and their families into familiar association with many of the leading scholars and scientists. Each year for 20 years the Santa Fe has been appropriating from \$10,000 to \$20,000 for these entertainments. The Santa Fe has been carrying out the conception of the statements at the head of this letter for 24 years.

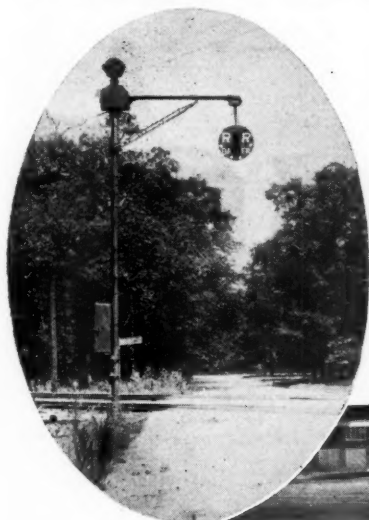
The object is to give the employees an uplift educationally and morally, to bring them into closer and more friendly relations with the executive and operating officials, and to develop a personal interest in the welfare of the company and make them proud to be on its payroll. S. E. BUSSEY.

Highway Crossing Protection, Theory and Practice

Data Required for Crossings Needing
Protection Should Be Complete
to Save Needless Expense

By J. A. Peabody

Signal Engineer, Chicago & North Western
Chicago



A Movable Visible Audible Signal; Crossing Gates and a Flagman with Hand Target

A NUMBER of investigations have recently been made to ascertain the care used by travelers in passing over railroad crossings. One made in St. Louis for a period of 48 hr. showed that of 1,216 pedestrians, only one stopped and looked in both directions before proceeding over the crossing, two persons looked in both directions but did not stop; 9 per cent looked in one direction only, while 88 per cent did not stop or look to the right or to the left; also 91 per cent of the drivers of 2,931 automobiles

coming in contact with each other, is to provide paths which do not conflict. This means separation of grades. However, a recent estimate made for one state indicated that the average cost of separating grades would be \$50,000 and the cost thereafter for maintenance, depreciation, interest on investment, etc., \$4,000 a year. If applied to all crossings in the one state in question this would involve an expense of \$170,000,000 which would more than double the investment in those railroads.

In recommending other protection, people forget that they are building up a cost which in some cases may approximate that of grade separation in the way of operating expense. In comparing the costs of different types of protection we find that a crossing sign approximates \$20 expense and practically nothing for maintenance; a crossing bell, \$1,050 for installation and \$200 for maintenance and operation; an automatic flagman and bell, \$1,200 for installation and \$250 for maintenance and operation; an eight-hour flagman costs an average of \$1,070 per year, chargeable to operating expense, while 24 hr. flagman service costs \$3,170. At this point the cost of grade separation is being approached rapidly.

Crossing gates with flagmen, at an annual cost of \$3,315, may be compared with \$4,000 for the average annual cost of grade separation. The public has no compunctions at all about requiring a railroad to put on flagman service, but it feels no obligation whatever towards paying a portion of that expense. It is becoming educated to a certain extent to the fact that grade separation is a joint benefit to the public and to the railroad and in some instances is willing to pay a portion of the expense. New York and some of the New England states for some years have had laws requiring the railroad to pay one-half the expense of grade separation, the municipality or township one-quarter and the state one-quarter. Under those circumstances, the cost to the railroad would be considerably less on an average for grade separation than it would be to put in a 24 hr. service flagman or gate protection.

Preliminary Study of Each Crossing Necessary

The question of how best to protect a crossing is a problem. I was given charge of that work about two years ago and found no uniformity in making reports and as a result I had great difficulty in convincing my superior officers of the necessity for the protection recommended. Therefore



Highway Protected by Signs and Movable Visible Audible Signals

failed to stop or look in either direction. Tests made on crossings in other parts of the country have shown similar results. These conditions may account for the numerous highway crossing accidents. Information from the National Safety Council shows that one person has been killed and three people injured for every two accidents. Because of the numerous accidents the problem of protecting highway grade crossings is one of first importance.

The ideal method of eliminating the danger of two objects

*Abstracted from paper given at Kansas City Sectional Committee meeting, Signal Section, A. R. A.

some data was outlined which I insisted should be obtained.

The railroad data should show all of the tracks and indicate whether they are main, passing, house, yard or industrial. The alignment of the main tracks, right of way lines, width of crossings, planking, the nearby buildings and any obstructions to the view should also be shown.

The highway data should include the alignment and width of the highway, width of traveled way, sidewalks, street car or interurban tracks, surface material, fences, and signs with their location and kind including crossing, approach warnings, advertising and other signs between the approach warning signs and crossing signs. There should also be an approximate profile of the roadway on each approach to the crossing for at least 300 ft. and the obstructions to view within 300 ft. of the crossing along the traveled way.

Where railroad cars are customarily left on the tracks so as to obscure the view from the highway, these should be indicated in their usual location. The lines of the maximum vision to the tracks from the street or highway at critical points within 300 ft. from the crossing should be shown. Information regarding the existing protection, giving data as to apparatus now in place, men employed, rates of pay, etc., should be supplied.

A count of traffic on the highway and on the railroad should be given by hours for a three-day period. The count for the first day should be for the full 24 hours unless there is known to be either no railway or no highway traffic during a part of this period, in which case the reason should be given. The count of the remaining days should cover the number of hours necessary to corroborate the count of the heavy traffic periods on various days as, particularly in the country, there are differences because of market days, Sundays, etc.

It is often necessary to go back and make complete additional 24-hr. period checks in order to know that such variations are covered. For this reason days should be selected carefully and should not necessarily be consecutive. If there is a greater or less traffic on the railway or highways at any season of the year or during some particular period, as when country fairs are being held or when adjacent highways are undergoing repairs, such information, if available, should be given.

Points for Consideration in Making Recommendations

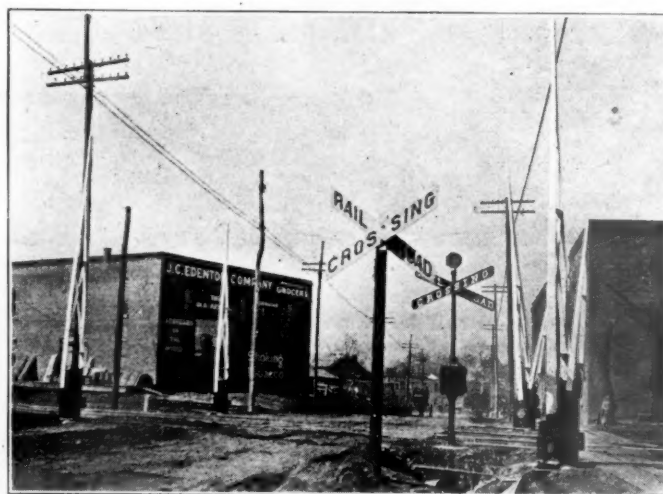
When making the plans and recommendations the following points may well be kept in mind: The clearing away of shrubbery on the right of way, on the highway or on private property; the moving of poles, fences or buildings; the relocation of signs; the installation of additional signs and the removal of advertising signs; widening the approaches; reducing grades to avoid stalling of automobiles, and cutting away knolls and widening cuts to improve the view. Some states have taken the stand that the property owners have a certain responsibility in clearing away shrubs, trees, etc. It is unfortunate that other states do not take the same view. In Wisconsin the railroad and adjacent property owners, if called on to do so, must clear away shrubs and trees to leave a clear view for 325 ft., along the track from the same distance along the highway. In Illinois, if there is not a clear view for 550 ft. along the railroad for 200 ft. on the highway, the crossing is considered hazardous and this space must be cleared out or protection may be required. Either one of these requirements will allow an automobile running at 30 mi. an hr. to stop if the train is in sight or to clear the track if the train is out of sight, even if the train is running 60 miles an hour.

The railroad companies have been very careless in the past in leasing their properties for industries with the result that buildings are often erected close to the highways, which require cars to be set near them. This is a point the railroads must consider in the future, not only when making

new leases, but in re-leasing their property, because those industries, particularly coal sheds, and even elevators, can often be moved to other points where they do not create a dangerous condition. In some cases we are being penalized to the extent of being required to put on flagmen because industries which do not come anywhere near paying for the expense, are located so close to the crossings that standing cars create conditions which require protection.

Possible Methods of Protection

When it is decided that some protection is required, the question arises as to the advisability of installing (1) one or two automatic flagmen with a bell or without a bell (if



Audible Warning, Crossing Signs and Gates Protect This Crossing

more than one automatic flagman is desirable the number needed and the reasons should be given). (2) Human flagmen with the number needed and between what working hours. (3) Crossing gates, number and between what hours they should be operated. In considering the possibility of installing gates it is often cheaper to give first-class protection with gates than with a flagman, where protection for two or more streets close together is required or when two railroads are close together and one man can operate the gates for both.

A detail which may be somewhat aside from the point is the location of gates for the protection of streets in the vicinity of depots or team yards to give the proper protection and at the same time not unduly delay vehicles. There should also be included a statement of the accidents that have occurred at the particular crossing being investigated and the manner in which they happen. Other conditions should also be reported which occur to the observer and which may influence the decision.

The above outline will not be found to be such a burden as it appears when it is considered that an improper installation may cost the company unnecessary money. When a report is made complete but little difficulty is experienced in securing approval of the recommendations.

All of the possible methods of protecting a crossing have not been mentioned above and additional ways will unquestionably be developed in the future. The use of signs is perhaps the least expensive protection that can be given. The joint committee of the American Railway Association and the state railroad commissioners has decided on certain signs which are coming into quite general use. Unfortunately, however, some authorities oppose them.

It seems very desirable that the forms and the use of certain signs and signals should be uniform throughout the

country so that the driver of an automobile may know just what each means as he approaches it. On a railroad it is feasible to have two or more types of signals controlling the engineman on his run and to use them with perfect safety, but the engineman is thoroughly acquainted with the physical characteristics of the line over which he operates and knows and recognizes these differences at once. This is not true with people driving over highway crossings which are strange to many of them.

A short time since I noticed a book describing the "International Road Signs." These signs are so clear in their meaning that they can be understood on first observation. It is unfortunate, inasmuch as such signs have been adopted, that they are not in use in the United States as there are signs, not only for approach and warning, but also for sharp turns, grades, etc., for which there are now none in general use in this country.

With the proper location of signs, some crossings may be given sufficient protection at a very small expenditure; however, more attention should be paid to their uniform location to the right of the driver for whose information they are installed. The barber pole effect on gates came from an accident that happened on the Long Island Railroad. There is a shale road parallel with the track (which is electrified) running six miles out of Long Beach. It was a general practice of automobile drivers to start from Long Beach and race electric trains to that particular crossing. One night seven of them tried it. The fourth one was hit but,



Three-Position Wig-wag and Audible Warning Signal Located in Center of Street

even with the proof of the drivers before and behind this car, the railroad was blamed by the jury because the crossing was not properly protected. The railroad then protected the crossing by placing across it telegraph poles 8 in. in diameter at the top and about 12 in. at the butt, counterweighted and painted barber pole effect. The railroad advertised what it had done and there were no more accidents.

It is necessary to put the fear of God in the automobile driver's heart. I know of no other way to cure some of them. The hump has that idea in view. It can be built so that a man running at moderate speed will hardly feel it, but if he is speeding it will throw him through the top of his automobile—as did actually occur in one place.

Other Forms of Protection

In one state before the wig-wag was developed we were asked to install illuminated signs and there are a good many in service yet as they have proved to be fairly effective devices. A number of reflecting signs have been used in Ohio and elsewhere; it seems that they have their place, particularly in giving approach information for a crossing. The crossing sign itself should not be moved out for it belongs where it is; it is similar to the stop signal used in railroad signaling. However, automobile drivers in many instances have not been furnished with signs serving the same function as a distant signal on the railroad. Various railroads are developing signs; for example, one railroad uses a two-light signal which it claims is distinguishable.

The automatic flagman, the waving light and the flashing light are designed to attract attention by motion, but varying uses are made of them on railroads and on highways in different parts of the country; for instance, flashing lights not connected to track circuits are in service on some railroads at certain places to indicate dangerous points without reference to the approach of a train. Flashing lights are also being placed at dangerous highway road crossings, or at curves where there are no railroads. Therefore, their effect is lost in indicating a railroad crossing specifically.

Two types of automatic flagmen are installed. (1) The two-position flagman with the banner hanging down when no train is near and waving when a train is approaching, and (2) the three-position flagman with the banner hid from view when no train is close, waving when a train is approaching and hanging straight down when the mechanism is out of order.

Automatic flagmen installed on the C. & N. W. have a small box locked with a switch lock and containing a test switch attached to the relay case. Section foremen at outlying points are required to use the test switch daily to test the bell or wig-wag. The maintainer tests the apparatus in automatic signal territory.

Sometimes it is necessary to install more than one automatic flagman. At heavy traffic crossings automobiles often follow so closely that the attention of a driver is taken up in watching the car ahead of him and he may overlook warning signs. When a road angles at or close to the railroad it may not be possible to locate one automatic flagman so that it can be seen readily at all times from both directions. The red light on the device should never be placed so that it can confuse enginemen; to avoid this on sharp angle crossings it may be necessary to use long hoods or to locate the automatic flagman a considerable distance from the track.

A peculiar condition exists on double track where only one flagman is used as it may be located across the track from an approaching automobile driver. Should a train pass on the track nearest him, he is likely to start across immediately behind it when there may be another train approaching from the opposite direction. Therefore, on angle crossings particularly, it is advisable to use two wig-wags so that one will be waving directly in front of the driver and at least give him food for thought before he starts across.

The Human Flagman

The human flagman is placed on many crossings during hours when traffic is heaviest. A great improvement was made in this protection when the "stop" sign, in place of the flag, was put into the hands of the watchman. Under the old conditions with the flag, it was hard to determine just what the watchman meant by his signal, whereas now it is almost impossible for it to be misjudged.

When the "stop" sign was first adopted I felt that it should be used with a very short handle but we have now adopted the long handle because of the careless manner in which some flagmen held up the "stop" sign and because

it was practically impossible to compel a man to hold up his sign for any great length of time even though he was not careless.

Automatic Gates

Automatic gates have been advocated and two different types have been designed, viz, (1) the high type, with an arm so high above the level of the road that it will not be struck by a passing vehicle even when in the horizontal position, this type having whips attached to it to indicate that it is down, and, (2) the low type, which is practically the ordinary gate but operated with track circuit control on the approach of trains. Neither of these types has apparently proved successful, and I believe the reasons may be briefly stated as follows: The high type does not attract sufficient attention nor does it prevent the driver from going across the tracks even though it is in the "stop" position; with the low type, there is nothing to prevent it from coming down on top of a vehicle or in such a way as to hold the vehicle on the track between the gates.

Manually operated gates perhaps give the best protection at crossings where there is sufficient traffic to warrant their use. Sometimes it is economical to install gates where the traffic is comparatively light when two or three sets can be operated by one man rather than to put in flagmen at each crossing.

When called as a witness once in a crossing protection case I was asked the relative efficiency of a manual flagman (human flagman) as compared with an automatic flagman and after due consideration, stated that perhaps the human flagman was the better at that particular place. After the case was settled I happened to meet the judge and he took me to task for my testimony on the basis that a human being was never as reliable as a piece of machinery and that in view of the conditions at the crossing which was under consideration, the automatic flagman would be much more reliable because there was nobody except perhaps an officer on an occasional train to see whether the flagman was performing his duty properly. The judge's criticism should be taken into consideration when studying crossing protection.

No one type of crossing protection is best adapted for all crossings nor is any one type the most efficient for all; machinery is often more reliable than a man and is on duty 24 hours a day, whereas the man may be on duty but a few hours. Therefore, from a signalman's viewpoint, each crossing must be studied separately and only after considering fully all of the conditions surrounding it can a decision be reached as to proper protection needed or whether that already in is sufficient.

The uniforming of flagmen is a point that should be considered, particularly in protecting crossings in cities, because the average automobile driver will recognize a man who wears a policeman's uniform when he will not recognize others. Very often it is possible to get the watchmen sworn in as special policemen.

A point which has not been touched on is the confusion of drivers when they are in danger. Their brains seem to get scrambled whenever they get in a machine. I was told of an incident by one of our flagmen, who said that he never attempted to push an automobile off of a crossing any more but instead went down the track to flag the train. In two or three instances he could have pushed automobiles off as they stood on a down slope but the drivers had applied their emergency brakes.

Education

The railroads are spending considerable on education. For some years the North Western has had a car traveling over the road with a man in it educating its engineers and trainmen not only in obedience of signals but regarding the information they can obtain from them. It takes this man a year to cover the road. He is not allowed to report

any man, no matter how ignorant he may find him. As a consequence he has obtained their confidence and they come to him with questions relative to signaling which they should know from the book of rules. After the lectures are over they ask for additional explanations and the instructor has found the greatest ignorance in some cases among engineers who have long been running locomotives. When this is a fact it is seen how much more necessary it is to educate the automobile drivers, and at present it is impossible for automobile drivers to tell what some of the signals put up at crossings for crossing protection mean.

Automobile Disasters Unchecked— Need of a More Extensive Campaign

THE PENNSYLVANIA RAILROAD reports that in spite of the most extensive educational campaign against crossing accidents ever carried on, its records show that in June, July and August, such casualties increased 30 per cent, as compared with 1921. The railroads of the United States have joined in efforts to make plain the deplorable results of carelessness, yet during three months, on the Pennsylvania System alone, there were 107 crossing accidents, in which 71 persons were killed and 115 injured. That this large increase is chargeable almost entirely to growth in the reckless and inexperienced driving of automobiles, is shown by the fact that casualties at crossings from all other causes decreased. Eighty-five automobile accidents caused the death of 56 persons, and injury to 107 others; and 12 of the accidents resulted in 39 deaths; four caused the death of 20 persons, or an average of five for each car involved. In two of the accidents, entire families were wiped out; though in both instances the drivers lived close to the scenes of the accidents and were familiar with the layout of the railroad tracks and roads.

The company has issued a circular, from which we quote:

"As against these lives lost in three months there were no passengers killed in train accidents anywhere on the Pennsylvania Railroad System during the entire year ended May 31, last; 152,000,000 passengers were carried safely. The chief reason for this striking contrast is that locomotive engineers are thoroughly trained in every detail of their work, and are required to demonstrate knowledge and ability to operate trains safely before being entrusted with their handling. On the other hand, the vast majority of motor car casualties are attributable to a comparatively small percentage of inexperienced and irresponsible drivers who have neither the knowledge, training or judgment required for the safe operation of such machines.

"Moreover, reckless driving of automobiles is not confined to highway crossings. Every day the newspapers report accidents caused by driving automobiles into telegraph poles, or stone walls, and by skidding, sideswiping, turning over and colliding. From this running chronicle of death and injury, the conclusion would seem warranted that what is needed at the present time is not merely a Careful Crossing Campaign, but a national campaign, carefully planned and directed against all forms of careless automobile driving. In this way possibly some impression may be made on the automobile accident record, which shows 12,500 persons killed and 300,000 injured, in the United States for the year 1921."

THE ACCOUNTING DEPARTMENT OFFICES of the Lake Erie & Western at Indianapolis, Ind., have been closed and the work has been combined with that of the New York, Chicago & St. Louis at Cleveland, Ohio.

The Design of Steel Freight Car Equipment*

Various Viewpoints That Must Be Considered—Importance of Limiting Speed at Impact in Switching

By John A. Pilcher

Mechanical Engineer, Norfolk & Western

THE IMPORTANCE of the proper design of modern freight car equipment to the car owners, as well as the economic interests of the country at large, cannot be overestimated. It is only within a little over 20 years that steel cars have come into general use. This development has been hastened by the increase in the price of lumber, the decrease in the price of steel and the demand for cars of greatly increased capacity. The use of steel makes it possible to build a car of any desired capacity, so far as the structure itself is concerned, the limitations upon size being only such as are placed by the clearances and strength of the roadway and other physical conditions surrounding operation.

The car constructed of wood, with the draft timber attached to the bottom of the center sills, equipped with the single-spring draft gears and the cast-iron link-and-pin drawbar, is a very resilient structure. This resilience was demonstrated by the fact that it was possible for so many years successfully to use the cast-iron drawhead. We cannot imagine the use of a cast-iron drawhead in a modern steel freight car with any expectation of having it moved any distance. This resilience of the old car was, in a measure, a protection to the lading in the car.

Steel Equipment Introduces New Condition

The introduction of steel into car construction, while it allowed of any capacity and any strength necessary, developed a rigidity in the car construction which reflected itself in local damage to the car itself, as well as the lading, and made necessary the development of the modern shock absorbers, known as friction draft gears, so that one of the greatest problems we now have in car design and upkeep is to get and maintain sufficient and proper shock absorbers and coupler attachments.

When we look about us and see the large variety of steel car designs that have been developed we can appreciate that there are many points from which the important features of the design can be viewed. The primary feature to every design is, of course, the production of a vehicle to haul the freight and produce revenue for the owner and user, but there are also various other features that have to be considered, and they present themselves in as many different phases as there are different minds working on the problem. It is my desire to point out some of the many important features that need be given consideration in the design of a steel car.

Stresses Due to Impact Complicate Problem of Design

If a railway car were subject to no other stresses than those of carrying the load the problem would be a simple one, and could be worked out on the same basis as bridges where the conditions are more or less fixed. There would then be no reasons for not reaching a proper strength of construction for the definite loading. The fact, however, is that the car has to be started, moved and stopped without there being any definite speeds of acceleration and retardation or without there being any certainty as to the character of the roadway over which it is to pass.

The design of the car needs to be studied from many points of view. Among these I will mention the following:

The Owner and User.—This involves the weight of the car itself, cost, maintenance and the possible earning capacity, based upon the cost of the investment and the cost of repairs.

The Transportation or Operating Department.—Its idea is a strong car so as to relieve it of all the burden of the supervision of yard switching crews. In this way it can cut down to a minimum the cost of switching service, which is a very large item in the cost of transportation.

The Claim Department.—It desires a car built in such a way that it will protect the lading from all possible weather conditions and be so resilient of itself that whatever is put in the car will never be damaged by any hurry-up movement in the yards.

The Car Builders.—The car builder desires a car that is very easy to build, one that can be put through the shop with the least amount of supervision; one that will allow the maximum of output in shop production. He is willing to sacrifice a great deal to these considerations.

The Manufacturers and Sellers of Specialties.—These look upon the car as a structure upon which they can hang something that they have to sell. A large duplication of cars of the same type offers a wonderful field for exploitation for the specialty man.

Car Design from the Standpoint

of the Owner and User

For the owner and user the car must be constructed primarily to carry the most freight with the least deadweight, so as to bring up the revenue load and enable the car to earn the largest amount of revenue during its life. This feature can hardly be given too much prominence. Of course, like all good things, it is possible to carry it too far.

Lightness of structure does not necessarily mean weakness of structure. The car should, of course, be designed so that it will last through a reasonable period of years, or so it will not be everlastingly on the repair tracks, as a car on the repair tracks is a charge against interest and depreciation during that period without any corresponding income.

So far as the load-carrying capacity of the car is concerned, it is not a difficult matter to fix definite limits of stresses for its proper design. If the designer were given fixed definite limits of speed of acceleration and retardation of the car in its movement and definite conditions of the track over which it is to be moved, it would not be a hard matter to fix the definite requisite strength of the car in every other way. It is at this point where different interests in railroad operation clash. It is the man in charge of moving the cars who is responsible for the speeds at which the cars are brought in contact in the classification yards. His idea is that he can save in the cost of classification by rushing the car movement. He should not fail to remember that every car he damages in this way costs him money in switching charges in that he has to take the car to the repair tracks and bring it back. In addition it also costs the company the loss of the time of the car and the cost of repairs, all charges coming from the same treasury.

It is possible to construct a car and make it strong enough to stand any kind of service to which it is liable, even without having the limits fixed for this service, but if a car

*From a paper presented before the Railway Club of Pittsburgh, September 28, 1922.

should be made strong enough to stand any possible yard service it would be so heavy and so costly as to be of little value to the owner..

Impact Speeds in Switching Should Be Limited

You will readily agree that every car should be made strong enough to stand any accelerating and retarding force that can happen to it while in train service or any type of brake application, but we do not believe it should be made strong enough to stand any kind of service that can be given to it in classification yards. Certain definite limits should be placed upon the rate of acceleration and retardation in the classification yards, or rather a definite maximum speed limit at the time of contact should be set and a large amount of supervision given in the education of the men to see that these provisions are carried out.

A great many of the car details have already been standardized. Through the instrumentality of the Master Car Builder's Association and the Mechanical Section of the American Railway Association, such items as wheels, axles, brasses, boxes, brake beams, brakes, couplers and parts, etc., have been definitely agreed upon. Certain other fundamental features of the car construction affected by impact have also been agreed upon, such as the standard cross-section of center sills, the minimum size and quality of draft yokes, and other features in connection with the draft gear, as well as definite dimensions affecting the fundamentals of the design. Studies are now being made as to the standard method of assuming the loading on the car and of the maximum allowable fibre stresses under such assumptions which will be allowed in the car framing itself, as well as the truck side frames, bolsters and other parts. This will be a wonderful step forward in unifying the art of car construction. It cannot, however, result in any permanent good unless there are some limitations put upon the usage of the car in the classification yard service. We can hardly conceive of anything that cannot be damaged or destroyed if handled sufficiently roughly.

The strength of the cars has been gradually built up in its power to resist end shocks, due to over-speed impact, from the old resilient wooden car through a series of modifications of the composite cars with various strengths of metal center and draft sills until we have reached the full steel car with a minimum of 24 sq. in. cross-section of center sills, which until the recent increase to 30 sq. in. was the maximum.

Center Sills Now Stronger Than Couplers

A recent examination shows that cars constructed with the old limit of 24 sq. in. of center sills (which had been in use for several years) are sufficiently strong between the back stops to furnish reaction against which the shanks of the most modern 6 in. by 8 in. coupler can be upset. It is interesting to note that an examination of a group of such cars, 16 cars being taken just as they were reached, showed three coupler shanks upset 1 in.; two $\frac{7}{8}$ in.; three $\frac{3}{4}$ in.; four $\frac{1}{2}$ in. and the rest of the group from $\frac{1}{4}$ in. to $\frac{1}{2}$ in. A later examination checking up these same cars indicated that one of these coupler shanks was upset as much as $1\frac{1}{4}$ in. From this we draw the deduction that no cars should be brought together at a speed exceeding that which will bring the draft gear solid, as any excess of such speed is nearly always liable to damage the cars, draft gears and couplers.

The old wooden cars with the wooden draft sills were all fitted up with dead-blocks of some form. Through these the final shock on the car came directly on the end of the wooden end sills to the center sills and they were resilient enough to sustain these shocks for a long time. Doing away with the dead-blocks brings the final shocks on the couplers, and with a clearance between the coupler horn and the striking face of the end sills these forces act directly upon the

couplers, upsetting the shanks and driving the coupler heads back into the car and damaging the draft gears.

The damaging of the draft gears and the upsetting of the couplers, which allows the coupler head to be driven back into the car body, has made heavy repairs around the ends of the cars necessary, even though the sills are not damaged between the back stops. The general development of trouble at the end of the car has of late brought into evidence many efforts to overcome this damage by building on to the end of the sills very heavy steel striking castings against which the coupler horn and head will land without going back into the car. If these castings are made sufficiently strong they will, of course, protect the shank of the coupler and, in a measure, the draft gear, at least to the extent of not allowing them to be compressed more than the slack between the horn of the coupler and the striking plate, but it will necessarily be at the expense of the coupler head containing the movable parts.

If there is no limitation placed upon the speed of the cars at the time of impact, these heavy striking plates will simply be anvils against which the coupler heads will, in a short while, be destroyed. Already the coupler horns have been suffering.

Suggested Change in Coupler Design

If the dead-block, which was used in the days of the link-and-pin coupler and for a long time afterwards, is to be considered entirely a thing of the past, even though the danger from its use is also largely passed, because no one is allowed to go between the cars in making the coupling, would it not be a good thing if the coupler head were made with a rim all around to come against the heavy cast-wheel striking faces on the ends of the sills, rather than depending upon the horn of the coupler alone?

I am offering in this a method of distributing these heavy loads to all parts of the coupler head rather than to concentrating them on the striking horn of the present couplers, which never was originally intended to be a striking part, but simply a projection through which the lift-hook lever protrudes.

Even if we should replace the dead-blocks which, with resilient material behind them, would, in their shock absorbing capacity for heavy shocks, be equivalent to an additional draft gear, would we not still have to place some limitation on the speed at the time of impact? Protecting the cars from destruction would not protect the lading enclosed within a rigid car from serious damage.

The continual adding of material to the car adds to both the cost and weight. These very seriously reflect in the dividend of the owning and operating corporation.

Comparative Costs of Heavy and Light Cars.

I wish to illustrate just what this means by making a comparison of three groups of cars, built at the same time, coming under our observation not many years back. One group of these cars was built with the idea of increasing the revenue load to the maximum which, of course, meant keeping the deadweight to the minimum and correspondingly decreasing the cost. In connection with the design of these cars, a reasonable strength was not neglected, as they were made sufficiently strong to upset the couplers previously mentioned, and up to the present time have not developed any defects that call for extensive repairs that would in any way attract attention. The other two groups of cars are very much heavier, due to the character of the design and to the additional equipment with which they were loaded.

Considering a train of different groups of cars of 5,500 tons gross, including the cars and lading, the lighter cars have \$759.10 more revenue in the train in the case of one group and \$516.49 more revenue in the train in the case of the other group. Taking the cost of the train into consid-

eration, the lighter cars cost \$95,833.88 less than the one group and \$74,212.50 less than the other group. If we allow interest and depreciation on the additional cost of 10 per cent and allow 20 round trips per year with the equipment, it means that the lighter cars had an interest and depreciation charge of \$479.17 less, per trip, than one group and \$371.56 less, per trip, than the other group. If we add together the difference due to the interest and depreciation and the difference in revenue per train we have a difference in one group of \$1,238.77, which is 12.32 per cent of the gross revenue of the train, and in the other a difference of \$888.03, or 8.62 per cent of the gross revenue of the train.

These figures are startling and show clearly that great saving to the railroads can be made by so regulating the handling of cars in classification yards that the adding on of extra material in the hope of preventing break-downs, due to over-speed impact, will not be needed. The fact that the lighter car in question was sufficiently strong between back stops to upset the shank of the latest A.R.A. coupler and strong enough to furnish the anvil against which the draft gears are being damaged, shows that the car is sufficiently strong in its present state, unless the couplers and draft gears are to be further strengthened.

Damage in Yards Responsible for Failures on Road

Is it not a fact that this over-speed impact in yards, which is upsetting the shanks of couplers and damaging the draft gears and creating in the trains a large amount of unresisted slack is the primary cause of the damage to trains in transit from the emergency brake application and the passage of long trains over humps and through dips?

It is my belief that trains of heavy cars properly equipped with modern draft gears, that have not been damaged and put out of commission or partially put out of commission by improper handling in classification yards, cannot be handled in ordinary train service in such a way as to bring about a sufficient differential in speed between the parts of the train at the time of impact to do any damage to either the equipment or the lading. I have recently been on very long, heavy special trains of new equipment, when the draft gears and attachments are in good condition, and have been impressed with the absence of these internal collisions. While these trains were equipped with special brake appliances which were being tested, I personally give credit for this admirable feature of operation to the condition of the couplers and draft gears and the absence of any great amount of unresisted slack.

This statement may lead to some difference of opinion and may open a way for considerable discussion, but I believe that practically all of the break-in-tuos of trains in service when the cars are equipped with modern draft gears and connections is entirely due to damage previously done in classification yards, either to the couplers, knuckles and pins themselves, or else in the fact that the compression of the coupler shanks and damage to draft gears has developed sufficient unresisted slack so there is opportunity for a considerable internal collision in the trains during movement.

Little Gained by Further Increasing Strength of Cars

To show how little can be gained by increasing the strength of cars, we have considered the impact test made by the United States Railroad Administration on the cars on the test track at Rochester, N. Y. At this time they not only tested various types of friction draft gears, but also made impact tests of cars without any draft gears. Drawing an analogy from these to show how little can be gained by increasing the strength of the cars, I call your attention to the following:

1—Assuming a 40-ton car weighing gross 132,000 lb., with a center sill of 24 sq. in. cross-section, fitted with a draft gear that will go solid at an impact speed of four

miles per hour, we find the reaction between the cars just as they go solid will be 1.6 times the weight of the car, or 211,000 lb.

2—If we consider the cars going together at 4.4 miles per hour, the force will be $3\frac{1}{2}$ times the weight of the car, or 462,000 lb. With 24 sq. in. cross-section, considering only direct stresses, this will give us 19,250 lb. per sq. in. If the sill of this car were increased to 30 sq. in., and using the same fibre stress, the force of reaction would have to be 580,000 lb., which is 4.4 times the weight of the car and lading. This will represent an impact speed of 4.55 miles per hour for the same car. We could, therefore, by increasing the sill of this car from 24 to 30 sq. in., or 25 per cent, increase the impact speed of the two cars from 4.4 to 4.55 miles per hour, or .15 miles per hour, which is 3.4 per cent. These figures are given that you may see how little increased speed at time of impact is gained by a very large increase in the cross-section of sills. This gives a proportionate increase in strength and unfortunately a proportionate increase in weight. It also gives an increase in interest and depreciation charge, and a proportionate decrease in earning capacity, and nothing like a proportionate increase in impact speed. It has only a very minor effect in the decrease in the cost of car repairs.

In recent years great efforts have been made to reduce the cost of transportation by large increases in the tonnage of the trains, primarily to increase the revenue per train. To do this very large locomotives have been built. This has been largely brought about by those in charge of transportation, who also have control over the equipment in the classification yards where, according to my belief, 97 per cent of the damage to both equipment and lading is done. With more care in the handling of cars in the classification yards the expense and upkeep of equipment can be very materially decreased and the expense of the claim department materially reduced.

How far do you suppose the transportation officer would be willing to go in his efforts in the reduction of the cost of hauling freight if he could bring about a saving equivalent to as much as 10 per cent of the gross revenue of the railway company he is serving? I should think he would be willing to undertake most anything. I have shown in a previous statement as between two groups of cars—one heavy and expensive and the other lighter and correspondingly less expensive, that there is a difference amounting to as much as 12.32 per cent of the gross revenue of the train.

Protecting Against Corrosion

One of the serious features in connection with steel cars, and particularly open top steel freight cars, is corrosion. While the outside of the car can, in a measure, be protected by the use of coatings, the inside portion of the open top car is subject to the corrosive influence of the contents of the car. The dumping and handling of the loads prevent the use of protective coatings on the inside. After the car has been designed so as to carry the load and withstand the shocks of impact, it would last indefinitely, but for this corrosion.

Its final destruction can only be retarded by adding thickness to the material at certain points where corrosion is liable to be excessive, and at certain points where corrosion will weaken the structure, particularly as for instance, in the framing. It is very hard to determine just how much the designer is justified in adding at these points, because any amount added decreases the hauling capacity of the car.

It is very desirable in the construction of large open top cars for use on dumpers to use inside stakes. When the stakes are placed inside they are subject to the extra corrosion which must be allowed for in fixing their size. Shapes should be used offering the least surface for corrosion.

During recent years there has been considerable experiment

made as to the value of copper-bearing steel for the purpose of retarding corrosion, using steel of approximately .20 per cent copper. The special tests that have been conducted and observations that have been made of former steel structures built of copper-bearing metal indicate that we may have a very considerable lengthening of the life of the car by the use of copper-bearing steel.

Every car must be looked upon as a package in which merchandise is being shipped. Any increase in the cost of the package, whether it is a car or a separate package going into the car, is a charge against the transportation of that particular article. Every additional expense to the cost of these packages is an additional burden on the transportation of the article and may, in some cases, prevent its being moved at all by the railways. It is just on account of such additional charges in order to protect freight that the automobiles on highways are cutting so deeply into the revenue of the railways, alongside of which they operate. The high cost of cars and the high cost of packages can kill transportation just as easily as high freight rates, because all three go together to make up the cost of transportation.

The designer, above all things, wishes to produce a car that has a large margin over its light weight for lading and for earning revenue, but to get this there must be some limitation put on the speed at which cars are brought together, and this should not be in excess of that which will bring the draft gears solid.

The Transportation Point of View

I have already touched upon this point of view in the preceding paragraphs. The transportation man always wishes a car designed so strong that it does not have to be repaired and one that can be handled without undue care. The transportation people are responsible for keeping down the cost of handling, but it is also their method of handling that, to a large extent, brings about the necessity for repairs. If any compromise is to be arrived at as between the cost of handling and the cost incident to indifferent handling, and the cost of interest and depreciation and loss of revenue in the train due to heavy construction, some definite limitation of speed at the time of impact will have to be fixed, otherwise the designer has nothing definite to which to work and will continue to build cars, making each one stronger than the other. This tendency to make the parts that break a little bit stronger has resulted in each new design being built coming out a little stronger and having power to inflict damage upon the older cars. Such new cars only await their turn to be smashed up by cars of a still heavier design and less carrying capacity coming out later. It is to be hoped that a campaign of education will be brought about to prevent any cars being put together at a greater speed than that which will bring the draft gears solid. Unfortunately there are a great many cars equipped only with twin-spring draft gears, which on the 40-ton loaded car would go solid with an impact speed just a little less than two miles an hour. There are a large number of such cars in use which must be considered in any study of this important phase of the problem.

It would be a good study for the transportation man to find out what percentage of switching movement he would save in his yards if he did not have to set aside damaged cars. Would he not be very much like the telephone operator who is in such a hurry that she gives the wrong number two out of five times, and as a consequence, gets so many calls that she cannot reduce her speed and so continues to make errors that are not only a source of annoyance to her but more so to her patrons? I cannot help thinking that if more time is taken in the handling of cars in switching there will be so much less time given to cutting out damaged cars that there would be little or no increase in the cost of the service.

Point of View of the Claim Department

The stronger and stiffer the car is designed and the heavier, the more liable it is to go solid on the draft gears, and the more liable it is to bring about damage claims due to the rigidity of the car itself. Damage claims, while very small in proportion to the cost of the car repairs, bring about a great deal of friction with outside patrons and develop dissatisfaction which is often of greater moment than the actual cost. The real cure for this is the educational campaign against over-speed impact.

The Car Builder's Point of View

The car builder, of course, desires a car so designed that it is easy to build. This is a consideration every designer should have in mind, since the simplicity in construction reflects itself in the price of the car to the owner and user, and in the cost of transportation, in that it reduces the interest and depreciation charge against the equipment. Too much study cannot be put in the design in order to increase the facilities for building along with decreased weight.

I recently had my attention called to two cars of the same weights and approximately the same number of rivets to drive, and was told by one builder that with the same working force, 25 cars of one design could be delivered from the shop a day as against 20 of the other design. This is mentioned to show the value of giving attention to this feature of the design. Particularly should attention be given to the possibilities of using machine as against hand-driven rivets, not only to save in the cost of rivet driving, but in getting better driven rivets.

The Specialty Man's Point of View

These men who have felt themselves called upon to develop and sell specialties for railway cars have taken a great part in the constructive development of the car-building industry of the country. They are to be highly commended for their efforts. The car building industry, on account of the large duplication of the same design, is a wonderful field for the efforts of such men. There are a great number of these specialties which are exceedingly useful and they should be used, because they are helps in reducing the weight, reducing the cost and reducing the maintenance of the cars. Great care, however, must be taken in selecting them, to be sure that the designer is not being muddled by having the advantages of the specialty overstressed to the neglect of its final value as an economic device, in comparison with others, when the cost is taken into consideration. It requires a large amount of careful analysis not to fool one's self as to the real value of these devices when they are presented, as they often are, in such a pleasing and convincing manner.

In general I do not believe it is possible to go to too much expense in the preparation of the design for steel freight equipment where there is such a large duplication from the same design. This is true for an individual company purchasing any large number of cars for their own use. It is true in a much larger proportion for the railways of this country, as a whole, when they can standardize cars for use on all railways. I have always felt that the American Railway Association, Mechanical Section, could not do better than to organize an engineering department for this purpose.

Every car for which a design is to be prepared should not have simply one design furnished and passed upon, but a dozen or more qualified designers should each work up a design following his own bent or views of construction, each along different lines, each bringing his design to completion, making all of the necessary diagrams, showing methods of loading, weights, details of construction, estimated costs, and then these designers should themselves

select either the best two or three to be finally passed upon, or the best types of construction that can be put together, considering weight, cost of construction, relative strength, ease of construction and other pertinent features, and in this way get the advantage of the very best that it is possible to produce to be presented to the country at large. The engineering cost of such a method would be insignificant compared to the advantages to be gained.

The final results will be that the car builders themselves will not find it necessary to maintain such large engineering forces, the cost of which enters into their overhead, which naturally has finally to be passed on to the purchaser and user of the cars.

Strike Situation Clears

THAT the shopmen's strike is practically over is demonstrated by the number of roads with which agreements have been reached, the success of the other roads in restoring normal shop operation, the marked decline in the number of cases of violence reported and the fact that the Car Service division of the American Railway Association has notified the railroad companies that they no longer need honor the commission's request for daily information as to the number of new employees taken on in place of strikers. The latest reports indicate that about 376,417 employees have been engaged by the railroads, which is approximately 90 per cent of the normal force. The majority of the old shopmen are back and the resumption of normal operations is beginning to be seen in the decline in bad order equipment.

Eighty-two railroads, it is claimed by Mr. Jewell, have signed the so-called "Willard-Jewell" agreement. These include the 19 roads which, with their subsidiaries, were among the earliest of the roads to reach a peace settlement. The following is a list of the roads, furnished by the Railway Employees' Department of the American Federation of Labor:

The Ann Arbor; the Alabama Great Southern; the Baltimore & Ohio; the Baltimore & Ohio-Chicago Terminal; the Bellingham & Northern; the Belt Railway of Chicago; the Boston & Albany; the Buffalo, Rochester & Pittsburgh; the Buffalo & Susquehanna; the Buffalo Creek; the Chicago, Milwaukee & St. Paul; the Chicago & North Western; the Chicago, St. Paul, Minneapolis & Omaha; the Chicago, Indianapolis & Louisville; the Chicago, Kalamazoo & Saginaw; the Chicago, Peoria & St. Louis; the Cincinnati Northern; the Coal & Coke; the Chesapeake & Ohio; the Chesterfield & Lancaster; the Cleveland, Cincinnati, Chicago & St. Louis; the Cincinnati, New Orleans & Texas Pacific; the Cincinnati, Burnside & Cumberland; the Dayton Union; the Davenport, Rock Island and North Western; the Duluth, Winnipeg & Pacific; the Des Moines Union; the Elgin, Joliet & Eastern; the Erie, Evansville & Indianapolis; the Fort Smith & Western; the Georgia, Southern & Florida; the Green Bay & Western; the Gallatin Valley; the Harri-man & Northwestern; the Kanawha & Michigan; the Kanawha & West Virginia; the Kankakee & Seneca; the Lake Erie & Western; the Lake Superior & Ishpeming; the Louisiana Railroad & Navigation Co.; the Michigan Central; the Mobile & Ohio; the Missouri Valley & Blair Ry & Bridge Co.; the Macon, Dublin & Savannah; the Milwaukee Terminal Co.; the Muncie Belt; the Minnesota & International; the New York Central; the New Orleans & North Eastern; the Northern Alabama; the New Jersey & New York; the New Orleans Public Belt; the New York, Susquehanna & Western; the Pacific Railroad; the Pittsburgh & Lake Erie; the Pierre & Fort Pierre Bridge; the Pierre, Rapid City & North Western; the Pittsburgh & West Virginia; the Puget Sound & Willapa Harbor; the Seaboard

Air Line; the Seattle, Port Angeles & Western; the Sandy Valley & Elkhorn; the Sharpsville; the Staten Island Rapid Transit Co.; the St. Paul Bridge & Terminal Co.; the San Antonio & Aransas Pass; the Texas Midland; the Tacoma Eastern; the Toledo & Ohio Central; the Tennessee Central; the Toledo Terminal; the Uintah; the Western Pacific; the Wyoming & North Western; the Wilkes-Barre & Eastern; the Zanesville & Western, and the Chicago & Western Indiana.

Readjustments both of forces and wages have occurred during the past week. The Chicago, Burlington & Quincy decided to reduce its shop forces at Plattsmouth, Neb., by 40 per cent, discontinuing the brass foundry and the freight car department, with the exception of the steel car shops and cutting down its planing mill and lumber yard forces. Increased wages have been granted the Great Northern shop workers through negotiations between the management and delegates who perfected a new system organization of shop workers. The scale of wages is higher than that established by the Railroad Labor Board and the new working rules, it is declared by the delegates, are more favorable than those prevailing previously. An increase in pay has also been granted to all signalmen including foremen, by the Chicago & Alton. The increases range from one to five cents an hour with the proviso that the men will purchase their own motor cars.

Violence was reported at Belle Plaine, Iowa, where several striking shopmen were arrested by federal authorities for violating the Daugherty injunction and at St. Louis, Mo., where a bomb was thrown at the residence of a mechanical superintendent of the Missouri Pacific.

The Erie last week reached an agreement with representatives of the striking shopmen which brought the strike to an end on that road. The details of the agreement were not made public, but it is rumored that they differ considerably from the Willard-Jewell plan of settlement. Strikers have been returning to work, under this agreement, all during the week.

Reports from the anthracite mining region of Pennsylvania indicate that the striking shopmen on some of the anthracite roads are endeavoring to interest the miners and municipal officials in their cause. Indeed, some of the reports stated that mayors of some of the large anthracite cities proposed calling upon officers of the anthracite carriers to urge them to reinstate the strikers. The facts of the case are, however, that miners and public officials have taken little interest in this move. It has been a shop crafts' proposition from start to finish and there seems little likelihood that there is any considerable sentiment on the part of anthracite miners to take any vigorous steps to aid the cause of striking shopmen. There is, of course, considerable congestion of traffic in the anthracite region but little of this can be charged definitely to the shopmen's strike. The roads are moving a heavy traffic of anthracite out of this region every day and some congestion may under such circumstances reasonably be expected.

The shopmen's strike is now so nearly over that the railroad companies were notified on September 27 by the Car Service Division of the American Railway Association that they need no longer honor its request for daily information as to the number of new employees taken on in place of the strikers. On Tuesday, September 26, the figures filed with the Car Service Division showed that the railroads reporting had approximately 363,417 employees engaged in the maintenance of cars and locomotives. Adding to this approximately 13,000 employees for some 50 non-reporting roads, gives a total of approximately 376,417 employees or approximately 90 per cent of a normal force. Starting on July 10 with 155,685 employees, the railroads up to September 26 had added 220,732 employees. Of these, approximately 71,417 have been added since September 1.

Tentative Valuation of Big Four

WASHINGTON, D. C.

THE INTERSTATE COMMERCE COMMISSION on September 28 made public its tentative report on the valuation of the properties of the Cleveland, Cincinnati, Chicago & St. Louis, including also its subsidiaries, the Vernon, Greensburg & Rushville; the Columbus, Hope & Greensburg; the Cincinnati, Lafayette & Chicago; the Peoria & Eastern; Saline Valley; the Cincinnati, Sandusky & Cleveland; the Findlay Belt, and Mount Gilead Short Line, as of June 30, 1915. The commission reports the final value of the property owned as \$139,620,322 and of the property used, included leased lines and joint facilities, as \$164,163,042.

The total outstanding capitalization of the Cleveland, Cincinnati, Chicago & St. Louis as of the valuation date is reported as \$158,947,021. While this is in excess of the final value found for the owned property, it is less than that for the property used. The leased lines which are included in the property used have a total capitalization of about \$41,000,000, of which approximately \$18,000,000 is owned by the carrier. The owned property, which is given a final value of \$139,620,322, includes 1,687 miles of first main track and 3,184 miles of all tracks, while the used property includes 2,221 miles of first main track and 3,946 miles of all tracks. The investment in road and equipment, including land, was stated on the books of the carrier to be \$144,375,812. If certain readjustments were made, as detailed in an appendix, the report says, this would be increased to \$149,170,011. Entering into this is an amount of \$60,333,426 which represents the par value of securities issued or assumed by the carrier, the money value of which at the time of entry is not known and cannot be determined. The report says that the original cost to date of all the common carrier property cannot be ascertained as the necessary details are not shown in the accounting records.

The cost of reproduction new of common carrier property other than land owned is given as \$142,369,120 and that for the property used as \$165,578,068. The cost of reproduction less depreciation is given as \$112,516,329 for the property owned, and \$130,580,201 for the property used. The carrier also owned 24,136 acres of land, which is given a present value of \$15,486,414. The land used, amounting to 30,378 acres, is given a present value of \$20,851,832. Non-carrier lands of a present value of \$3,502,837 are also

reported and the carrier had investments in other companies and notes of individuals and miscellaneous investments having an aggregate par value of \$42,758,486 and a record book value stated as the net investment of the carrier of \$19,564,875. The final value stated includes \$5,000,969 on account of working capital, including materials and supplies.

The commission has also issued tentative valuations of a number of smaller roads giving the final value as follows:

	Owned	Used
Augusta Southern, 1916.....	\$919,976	\$922,190
Barnegat, 1916	86,282	91,782
Durham Union Station, 1916.....	101,644	160,259
Amador Central, 1916.....	361,456	361,584
Hillsboro & Northeastern, 1917.....	96,395	.....
Due West, 1916.....	28,500	37,000
Bingham & Garfield, 1916.....	5,894,183	5,830,443
Beaver, Meade & Engelwood, 1918.....	75,000	.....
Laurel Fork, 1916.....	366,396	.....
Kentucky Midland, 1917.....	214,455	.....
Lacrosse & Southeastern, 1917.....	640,581	.....
Little River, 1916.....	226,961	191,961
Manchester & Oneida, 1916.....	121,415	121,607
Muscatine, Burlington & Southern, 1918.....	846,095	.....
Mountain Central, 1917.....	58,005	.....
Moscow, Camden & San Augustine, 1918.....	76,456	.....
Mascot & Western, 1917.....	133,717	180,067
Philadelphia & Beach Haven, 1916.....	250,000	.....
Nevada Copper Belt, 1917.....	721,112	724,112
Stanley Merrill & Phillips, 1916.....	571,789	.....
Willamette Valley & Coast, 1917.....	95,033	.....

Graphic Presentation of Railway Earnings and Expenditures

THE Bureau of Railway Economics has prepared bar diagrams showing railway operating revenue and how it was expended and distribution of each dollar of operating revenues during 1921. Similar bar diagrams for years back to and including 1916 are given for the purpose of comparison. These bar diagrams are reproduced on the opposite page and the data from which they were drawn are given in the table below. In spite of the unfavorable traffic conditions of 1921 it is to be noted that return on investment, the measure of the success of the railways from a business point of view was much greater in 1921 than in 1920 which was a banner year as far as traffic is concerned. The diagrams make this and similar comparisons easy.

STATISTICS UPON WHICH CHARTS ON OPPOSITE PAGE ARE BASED

Item	1916	1917	1918	1919	1920	1921
Total operating revenues.....	\$3,596,865,766	\$4,014,142,747	\$4,880,953,480	\$5,144,795,154	\$6,178,438,459	\$6,516,556,462
Labor (salaries and wages) a.....	1,365,776,046	1,617,718,392	2,430,846,416	2,644,109,442	3,424,075,109	2,585,329,497
Fuel (locomotive).....	250,544,862	393,929,538	500,225,205	474,174,792	674,836,361	523,724,146
Loss and damage, injuries to persons, and insurance	71,175,856	91,396,709	110,688,906	154,408,092	219,405,759	161,199,699
Depreciation and retirements.....	119,785,157	115,404,686	119,233,705	126,292,105	144,046,781	156,372,133
Material, supplies and miscellaneous.....	550,913,977	611,575,889	821,687,786	1,001,647,973	1,366,538,753	1,138,224,388
Taxes	157,113,372	213,920,095	223,175,379	232,601,396	272,061,453	275,883,596
Hire of equipment and joint facility rents.....	41,471,979	36,128,668	36,527,480	56,576,401	60,247,341	75,276,779
Net ry. operating income (return on investment)...	1,040,084,517	934,068,770	638,568,603	454,984,953	17,226,902	600,546,224
<i>Distribution expressed in cents per dollar of Gross Revenue</i>						
Total operating revenues.....	100.0	100.0	100.0	100.0	100.0	100.0
Labor (salaries and wages) a.....	38.0	40.3	49.8	51.4	55.4	46.9
Fuel (locomotive).....	7.0	9.8	10.3	9.2	10.9	9.5
Loss and damage, injuries to persons, and insurance	2.0	2.3	2.3	3.0	3.6	2.9
Depreciation and retirements.....	3.3	2.9	2.4	2.5	2.3	2.8
Material, supplies and miscellaneous.....	15.3	15.2	16.8	19.5	22.1	20.6
Taxes	4.4	5.3	4.6	4.5	4.4	5.0
Hire of equipment and joint facility rents.....	1.1	0.9	0.7	1.1	1.0	1.4
Net ry. operating income (return on investment)....	28.9	23.3	13.1	8.8	0.3	10.9

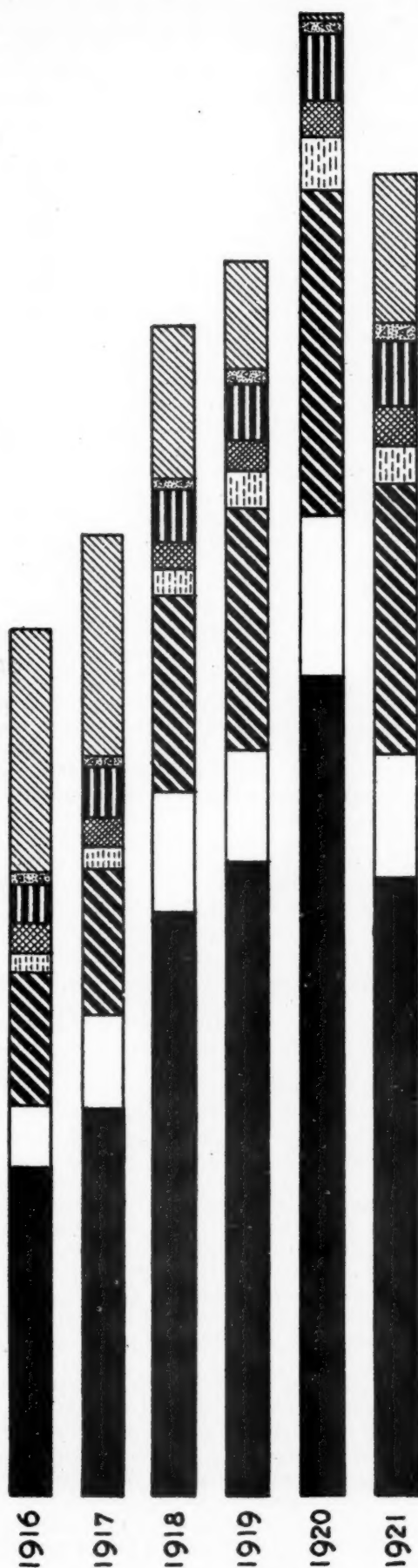
a Labor expenditures do not include that portion of the pay-roll chargeable to Capital Account.

NOTE—Data for the years 1918, 1919, and 1920, represent the combined results of the Federal and Corporate operations of the Class I roads under Federal Control, also data for Class I roads not under Federal Control, but do not take into account the general administrative expenses of the U. S. Railroad Administration. Switching and terminal companies are excluded from statement throughout.

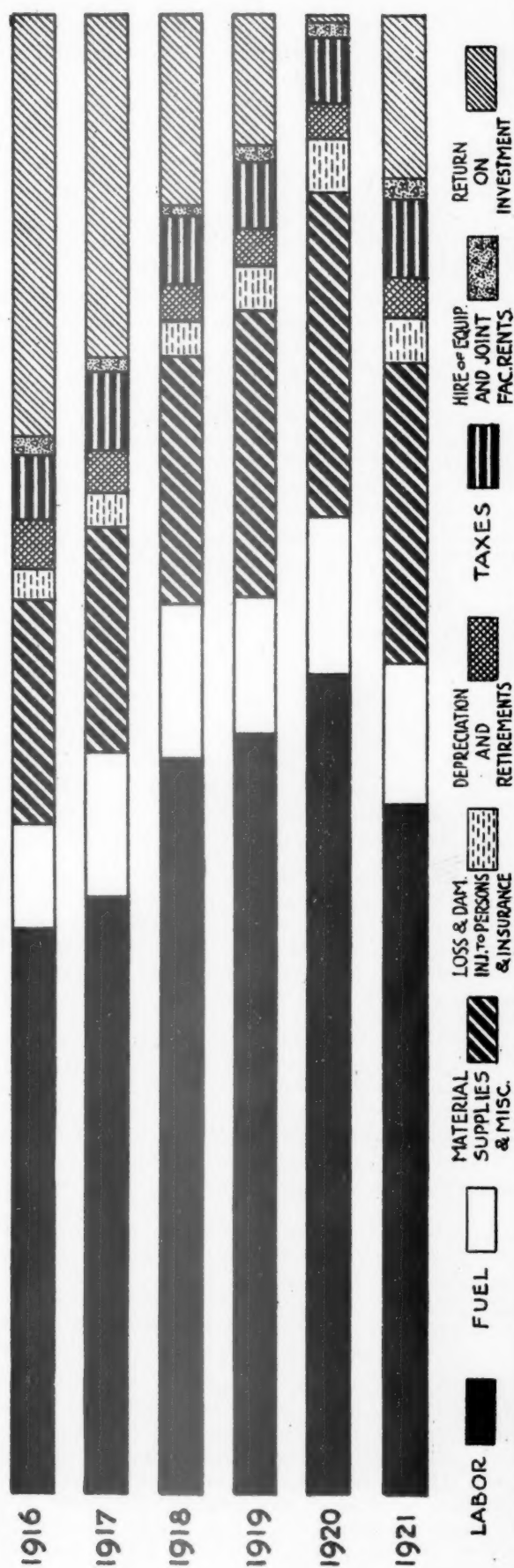
Bureau of Railway Economics.

Washington, D. C.,
August, 1922.

RAILWAY OPERATING REVENUE AND HOW IT WAS EXPENDED, 1916-1921 (RAILWAYS OF CLASS I)



DISTRIBUTION OF EACH DOLLAR OF RAILWAY OPERATING REVENUE, 1916-1921 (RAILWAYS OF CLASS I)



Accident Bulletin No. 82— Annual Report, 1921

THE INTERSTATE Commerce Commission has issued Accident Bulletin No. 82, containing the record of collisions, derailments and other accidents on the railroads of the United States for the last quarter of 1921 and also for the 12 months ending with December. The total number of casualties shown in the annual tables is 126,681; made up of 5,996 killed and 120,685 injured. The principal totals making up this aggregate are shown in our double column table, with comparisons for the preceding three years. In the first line of this table, the most important from a

in service, the lowest ratio in five years. This is only half as bad a ratio as that recorded for 1920 (69 killed; 5.27 per 1,000) but now, as in the earlier year, it is more than twice as bad as the average for freight enginemen (32 killed; 1.13 per 1,000). Evidently the speed of trains is an important element in the degree of safety enjoyed by locomotive enginemen. The ratios for firemen are about the same as those for enginemen.

In the year now covered, the number of train accidents is smaller than it would have been under former regulations, a rule having been adopted that when a person is killed or injured in a train accident which damages railroad property not more than \$150 the casualty will be classed as caused in a train-service accident. A collision, for example, is not

CASUALTIES TO PERSONS IN RAILROAD ACCIDENTS—FOUR YEARS

	1921		1920		1919		1918	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
Passengers—								
In train accidents.....	110	2,601	95	4,631	110	4,549	286	4,655
In train service accidents.....	116	3,543	169	3,825	191	3,598	233	3,427
Total.....	226	6,144	264	8,456	301	8,147	519	8,082
Employees on Duty—								
In train accidents.....	195	1,296	422	3,385	359	2,955	547	4,179
In train service accidents.....	901	27,228	1,685	43,535	1,334	33,325	2,212	42,782
Total.....	1,096	28,524	2,107	46,920	1,693	36,280	2,759	46,961
Total passengers and employees on duty.....	1,322	34,668	2,371	55,376	1,994	44,427	3,278	55,043
Employees not on duty.....	41	223	91	314	66	321	169	595
Other Persons, not Trespassing—								
In train accidents.....	3	16	11	86	9	61	117	433
In train service accidents.....	1,740	5,346	1,856	5,642	1,873	5,134	1,878	5,268
Total.....	1,743	5,362	1,867	5,728	1,882	5,195	1,995	5,701
Trespassers†—								
In train accidents.....	49	141	48	77	32	63	39	67
In train service accidents.....	2,432	2,930	2,118	2,291	2,521	2,595	3,216	2,738
Total.....	2,481	3,071	2,166	2,368	2,553	2,658	3,255	2,805
Total of the above.....	5,587	43,324	6,495	63,786	6,495	52,601	8,697	64,144
Non-train accidents.....	409	77,361	463	104,522	483	96,452	589	110,431
Grand total.....	5,996	120,685	6,958	168,308	6,978	149,053	9,286	174,575

*Includes persons struck by trains at highway crossings, of whom, in 1921, there were 1,702 killed, including 106 classed as trespassers. The injured numbered 4,818. The total killed in the year preceding was 1,790.

†A small percentage of the persons classed as trespassers represents employees.

passenger standpoint, there is no marked change as compared with the preceding two years except that in 1921 the number of passengers injured was about 44 per cent less than in 1920. The number of employees killed in train accidents and train service accidents shows a diminution of 48 per cent, due, in large measure, no doubt, to the smaller volume of business done in 1921 and secondly, to the fact that with a smaller volume of business, the competency and efficiency of the individual employees is higher.

The total number of train accidents in 1921 was 21,251, or about 41 per cent less than the total in 1920. The principal items in these tables for the two years are as follows:

	1921				1920			
	No.	Damage	Killed	Injured	No.	Damage	Killed	Injured
Collisions...	5,102	\$4,657,390	130	1,839	10,110	\$9,078,110	253	3,840
Deraillments	13,615	16,518,440	132	1,854	22,477	22,987,790	194	3,549
Other train accidents.	2,534	1,577,520	47	231	3,726	2,063,960	89	743
	21,251	\$22,753,350	309	3,924	36,313	\$34,129,860	536	8,132

The bulletin contains the usual full and detailed analyses of all the tables in the record, with some of the comparisons carried back 30 years and more. About 20 pages are occupied with tables showing totals of casualties on individual roads. Of the persons killed or injured at highway grade crossings (1,705 killed and 4,868 injured) 80 per cent were occupants of automobiles. This figure has gradually increased from the year 1917, when it was 59 per cent.

The number of passenger train enginemen killed in train and train-service accidents, 37, is equal to 2.86 per thousand

a reportable collision if the damage to cars, engine and roadway amounts to less than \$150.01.

Railroads Urged to Concentrate Efforts on Coal Traffic

WASHINGTON, D. C.

AN URGENT APPEAL to concentrate on a drive for the expedition of coal movements, especially during the month of October, has been addressed by Fuel Distributor Spens to the executives of the various coal-carrying railroads.

"I appreciate fully the current conditions on the railroads; the ravages of the strike, and the fact that today the offerings of tonnage of all character are large, and the further fact that, in spite of these circumstances the carriers, in the aggregate, are making a splendid showing in the transportation of coal," says Mr. Spens. "In these circumstances I am somewhat loath to suggest the possibility of even better performance.

"Due to the dual strikes there is, of course, a dearth of coal. Consumers, domestic as well as industrial, have been urged only to purchase coal for immediate requirements. Current transportation is adequate for current needs, but not sufficient to permit of reserves. An early cold snap would play havoc with consumers, as well as with the power of the railroads. There might be actual distress. It has been suggested that, perhaps, there should be a temporary cessation in transportation of certain other classes of traffic, that more equipment and power might be applied to coal. In my judg-

ment, it would be regrettable if any action in that direction should become necessary.

"Are you willing to see if something can possibly be done to increase the coal movement over your line?"

"As suggested by the President, we are extremely anxious to make October the banner month. A personal word directly from you to each member of your operating staff, down, if you will, at least to the division superintendent, that coal shall, so far as practicable, be moved through to destination or junctions with connecting lines, without set-outs, and that empties shall not be delayed at terminals or junctions, but shall be promptly returned to mines will, I am confident, accomplish all that could be reasonably expected. Your traffic department could undoubtedly also be of great assistance by urging prompt unloading by consignees.

"Extraordinary movement of coal, loads and empties, during the next few weeks, in view of the heavy traffic in all commodities, will probably tend to increase the cost of handling, but I believe this additional cost might prove to be a good investment as compared with a much greater cost that might be incurred in the event it should become necessary to adopt more drastic measures to care for the situation.

"Very possibly to accomplish increased handlings of coal, delays to other traffic may occur, but this is contemplated, or at least should be expected, under the existing orders of the Interstate Commerce Commission which provides priority in transportation on coal, equal only with food and feed and some minor public necessities."

The first meeting of the Advisory Committee on Transportation, recently appointed by the American Railway Association at the request of Federal Fuel Distributor Spens, was to be held in Washington on Thursday. At this meeting the committee, which is headed by Daniel Willard, president of the Baltimore & Ohio, was expected to formulate the practical details for accomplishing the heaviest movement of coal possible during the month of October.

In response to an inquiry from the Interstate Commerce Commission regarding the advisability of modification of the reconsignment practices on shipments of coal in open-top cars, Fuel Distributor Spens has declared that, unless there should be an unfavorable change in the present situation as to reconsigning, the existing rules should, in his opinion, be permitted to stand without revision. "It is true," he said, "that at about the time the coal strike was ended there was at certain terminals quite a quantity of coal on hand awaiting disposition, but this was due largely, I think, to the fact that this coal had been purchased at high prices, with the result that the breaking of the strike made it difficult for the operators or jobbers to find customers. Today there appears to be an exceedingly small percentage of the total loading of cars held for reconsignment, approximately one-third of one per cent, and I am inclined to the opinion that, with the big demand for coal that now exists and with the instructions that you have extant that consignees must unload within 24 hours or be embargoed, that we need not, just at this time, have much apprehension that the privilege will be dangerously abused. As a matter of fact, in many instances it perhaps works toward a reduction in prices, and likewise in many instances, actually makes for a more prompt disposition of the coal and release of the equipment than might otherwise be the case. In the event the views of the Interstate Commerce Commission should coincide with my own, this department can, perhaps, be of some assistance by cautioning handlers of coal that unless cars are promptly released it might become necessary for us to recommend to the Interstate Commerce Commission the cancellation of the present privileges, or drastic restrictions."

The 15 naval officers who will act as field representatives of the federal fuel distributor in as many districts into which the territory east of the Mississippi river has been divided for administrative purposes connected with coal distribution,

have left Washington and began their duties at their new stations on October 2. The points to which these officers have been assigned are as follows: St. Louis, Mo.; Cincinnati, Ohio; Knoxville, Tenn.; Pittsburgh, Pa.; Columbus, Ohio; Louisville, Ky.; Evansville, Ind.; Birmingham, Ala.; Springfield, Ill.; Charleston, W. Va.; Fairmont, W. Va.; Norton, Va.; Bluefield, W. Va.; Altoona, Pa.; and Greensburg, Pa. These officers have been instructed to keep Federal Fuel Distributor Spens informed daily relative to local conditions as to the production and distribution of coal and the prices obtained for coal and other fuels in their respective districts. They are expected to watch closely for acute fuel shortages that may develop, to keep posted as to markets to which coal is moving, to note carefully the transportation conditions prevailing, and to collect information as to whether prices obtained for fuel are justified.

In the south and middle west, bituminous lump coal is the principal domestic fuel, and the field representatives have been instructed to watch carefully the prices and distribution of this grade or size of coal. The principal factor in the coal situation, outside of the distribution, or domestic consumption, existing at the present time is the charge being made by the operators and the delivered price to the consumers. In order that an accurate check may be kept on this situation, the district representatives of the federal fuel distributor have been instructed to make an analysis of the prices being received on contract and spot coal and the general markets in which coal from each of the producing districts is flowing.

Field representatives are expected to keep in close touch with the various trade associations, the officials of coal-carrying railroads, and the chambers of commerce in their representative territories. Periodical visits are to be made to various points in the coal producing districts to ascertain the local conditions. As the car supply situation at coal mines is of particular importance, field representatives will watch particularly the effect of reduced car supply upon the cost of producing coal.

Data regarding the distribution and marketing of coal consumed within the state in which it is mined are desired by the federal fuel distributor as being essential to the proper distribution of coal moving across state lines. Information is needed as to the prices obtained for the first-named class of coal because of the possibility of its being reconsigned to points outside of the state and being resold.

In cases where the coal produced by a mine is sold exclusively through a marketing agency located in an entirely different territory, the price data desired will be arrived at through sales reports made to the mine operator by the selling agent, the cost of transportation being deducted from the sales price in order to determine an approximate price at mine.

A statement of the stocks of coal on hand on the docks of Lake Superior ports on September 15, illustrates vividly the difference in conditions prevailing in that region this year and last. On the Duluth-Superior docks there were on hand 6,786 tons of anthracite and 269,951 tons of bituminous coal compared with stocks of 826,436 tons of anthracite and 5,618,948 tons of bituminous on these docks in September, 1921. On the Ashland-Washburn (Wisconsin) docks 877 tons of anthracite and 44,177 tons of bituminous coal were on hand September 15 of this year as against 22,619 tons of anthracite and 238,923 tons of bituminous on hand a year ago. From these docks, coal is supplied to the states of Minnesota, Wisconsin, North and South Dakota and Iowa. On upper Lake Michigan docks, there were on hand September 1 of this year 49,102 tons of anthracite and 158,978 tons of bituminous compared with stocks of 502,921 tons of anthracite and 2,162,149 tons of bituminous on these docks on October 1 of last year.

Since these figures were compiled heavy shipments of coal

have been received at these docks. The estimated dumping of coal at lower Lake Erie ports Saturday and Sunday for trans-shipment to upper lake ports is 6,555 cars, which would make a total of 1,200,000 tons for the week. On Saturday, September 30, a total of 22,788 cars of coal were on hand at Lake Erie ports or in transit within 48 hours.

Priority orders for the movement of coal are being employed only rarely. The federal fuel distributor is asking the Interstate Commerce Commission to issue such orders only in cases of real distress where it is impossible to relieve an acute fuel situation by any other means.

Assurances of cordial co-operation in the execution of measures deemed necessary to insure an equitable distribution of coal in the present emergency are being received from the governors and fuel administrators of the various states.

Mr. Spens has received inquiries from the diplomatic agents of certain foreign countries relative to the policy to be pursued in providing bunker coal in American ports for vessels sailing under foreign flags. Mr. Spens has informed these inquirers that, while it is expected to make the best provision possible for bunker coal supplies it is strongly urged, in view of the fuel emergency prevailing in the United States, that foreign-owned vessels take on all coal supplies possible to obtain at foreign ports. For the present, such vessels will be expected to stow in American ports coal supplies sufficient only to provide for reaching the next port.

Freight Car Loading

WASHINGTON, D. C.

THE NUMBER OF CARS loaded with revenue freight showed another large increase during the week ending September 23 and the figures are rapidly approaching the high record set in 1920. The total for the week was 973,291 as compared with 873,641 in the corresponding week of last year and 1,008,109 in the corresponding week of 1920. This was an increase of 27,372 over the week before, in

and merchandise, l.c.l., showed increases as compared with the preceding week, while increases as compared with the corresponding week of 1920 were shown in grain and grain products, livestock, merchandise and miscellaneous. The summary as compiled by the Car Service Division of the American Railway Association given in the table.

The car shortage for the period September 15 to 23 was 107,666, which included 55,827 box cars and 32,148 coal cars. The surplus was reduced to 11,292, including 1,338 box cars and 7,018 coal cars. During the corresponding week of 1920 the car shortage was only 89,947 but in that year the shortage came earlier and reached its high point during the week ended August 31, when it was 147,309.

The car shortage for the period September 8 to 15 averaged 85,906 cars, including 26,000 coal cars and 46,128 box cars. For the same period the surplus was reduced to 22,969, including only 1,831 box cars and 17,614 coal cars.

The percentage of locomotives out of service for repairs requiring over 24 hours increased from 22.6 on August 1 and 23.8 on August 15 to 25.3 on September 1, according to reports just issued by the Car Service Division of the American Railway Association. The percentage out of service for repairs requiring less than 24 hours was the same on September 1 as on August 1, 5.6 per cent, but less than on August 15, when it was 5.7. The number of serviceable locomotives was 44,501 on September 1 as compared with 46,195 on August 1 and the number of serviceable locomotives stored was 2,842 as compared with 4,939. The number requiring over 24 hours repairs was 14,505 and the number requiring less than 24 hours was 3,573.

Fewer freight cars were in need of repairs on September 15 than on either July 1 this year, when the shopmen's strike began, or on September 15 last year, when there was no strike, according to reports compiled by the Car Service Division. Freight cars in need of repairs on September 15 this year totaled 304,548, or 13.4 per cent of the cars on line. This was a decrease of 20,035 cars compared with July 1, when the total was 324,583 cars or 14.3 per cent of

REVENUE FREIGHT LOADED. SUMMARY—ALL DISTRICTS, COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO. WEEK ENDED SATURDAY, SEPTEMBER 23, 1922

Districts	Year	Grain and Grain Products	Live Stock	Coal	Coke	Forest Products	Ore	Mdse L. C. L.	Miscellaneous	Total Revenue Freight Loaded		
										This Year 1922	Corresponding Year 1921	Corresponding Year 1920
Eastern	1922	7,868	3,334	57,123	1,612	6,053	4,822	65,177	96,898	242,887	.....	.....
	1921	9,801	3,278	44,436	1,358	4,616	2,208	62,973	83,039	.....	211,709	249,605
Allegheny	1922	3,068	3,350	56,054	4,114	3,466	9,359	50,514	78,387	208,312	.....	.....
	1921	2,849	3,061	46,740	2,254	2,806	6,242	47,463	58,678	.....	170,093	213,151
Pocahontas	1922	250	386	16,263	192	1,382	35	5,039	3,270	26,817	.....	.....
	1921	287	447	20,687	170	1,314	171	5,674	4,054	.....	32,804	39,073
Southern	1922	3,548	2,577	20,059	799	17,737	1,128	37,451	40,824	124,123	.....	.....
	1921	3,998	2,222	21,718	340	15,104	362	39,640	40,431	.....	123,815	130,470
Northwestern	1922	19,432	9,115	9,195	1,412	15,942	31,785	28,796	38,795	154,472	.....	.....
	1921	14,903	8,575	10,447	552	11,603	19,764	28,589	36,154	.....	130,587	168,073
Central Western	1922	13,587	14,559	21,723	397	7,325	1,995	32,259	55,646	147,491	.....	.....
	1921	16,079	12,178	21,448	177	6,423	753	32,488	47,689	.....	137,235	140,451
Southwestern	1922	4,626	3,575	7,479	145	6,948	463	15,135	30,818	69,189	.....	.....
	1921	4,989	3,008	4,680	240	6,498	835	15,897	31,251	.....	67,398	67,286
Total Western Districts	1922	37,645	27,249	38,397	1,954	30,215	34,243	76,190	125,259	371,152	.....	.....
	1921	35,971	23,761	36,575	969	24,524	21,352	76,974	115,094	.....	335,220	375,810
Total All Roads	1922	52,379	36,896	187,896	8,671	58,853	49,587	234,371	344,638	973,291	.....	.....
	1921	52,906	32,769	170,156	5,091	48,364	30,335	232,724	301,296	.....	873,641	.....
	1920	44,769	33,424	215,433	15,648	63,525	83,059	209,606	342,645	.....	.....	1,008,109
Increase Compared	1921	.....	4,127	17,740	3,580	10,489	19,252	1,647	43,342	99,650	.....	.....
Decrease Compared	1921	527	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Increase Compared	1920	7,610	3,472	.....	.....	.....	.....	24,765	1,993	.....	.....	.....
Decrease Compared	1920	.....	.....	27,537	6,977	4,672	33,472	.....	.....	34,818	.....	.....
Week Ended—												
September 23	1922	52,379	36,896	187,896	8,671	58,853	49,587	234,371	344,638	973,291	873,641	1,008,109
September 16	1922	52,090	34,929	172,241	8,188	57,371	53,293	234,513	333,294	945,919	852,552	991,166
September 9	1922	47,732	29,512	139,570	8,418	51,906	53,833	203,666	298,107	832,744	749,552	883,415
September 2	1922	54,019	31,847	149,487	8,389	58,706	62,354	233,550	333,246	931,598	831,288	961,633
August 26	1922	54,562	32,046	111,030	8,390	60,466	65,041	230,000	329,303	890,838	828,883	1,001,308

spite of the fact that the car shortage also showed an increase and was greater than it was in the corresponding week of 1920. In that year the peak shortage was reached earlier in the year, during the last week in August. Coal loading was larger than during any previous week since the strike—187,296—and all classes of commodities except ore

the cars on line. On September 15 last year, 374,431 or 16.3 per cent of the cars on line were in need of repairs, 69,883 more than on the same date this year. A reduction of 17,126 was reported in the number of cars in need of repairs on September 15, compared with September 1. Comparisons showed a decrease in every district.



The Arrangement of the Equipment

Cleaning Track With a Power Driven Sweeper

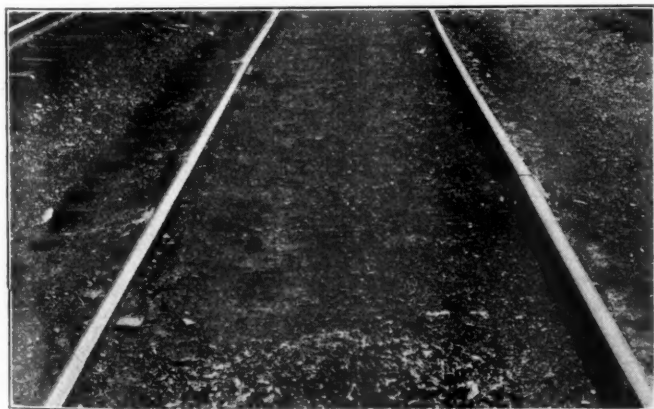
Pennsylvania Railroad Develops a Labor Saving Unit to Lower Maintenance Costs on Mountain Sections

ONE OF THE LATEST forms of mechanical labor saving equipment for maintenance of way work is a power-driven track sweeper now in use on the Central region of the Pennsylvania Railroad. This unit sweeps up and loads into cars the dirt, chiefly ashes, cinders and coal dust, which fouls the track and ballast with extreme rapidity in the heavy traffic, mountain sections of the road where pusher

are also cleaned by this equipment. The dirt accumulates very quickly on this part of the line, there being about 102 miles of track which require cleaning from four to six times annually. This is necessary primarily to keep the signals working properly as well as to keep the track in such condition that a proper inspection of the rail fastenings can be made periodically and that the ballast does not become badly fouled with consequent interference with good drainage.

The sweeper consists fundamentally of a rotary steel broom 3 ft. in diameter and 7 ft. long built up from steel splints measuring 1/32 in. by 3/16 in. in cross-section. This broom is suspended beneath the frame of an old flat car by special hangers which permit it to be raised or lowered at will. This is accomplished through the use of an air brake cylinder connected with the train air line. The broom turns at about 100 r.p.m., and is chain driven from a gasoline engine mounted on the car deck. A steel pan hinged and shaped to fall over the two rails is attached slightly ahead of the rotary broom which sweeps the accumulations up this pan onto a conveyor belt 7 ft. wide. This belt operates over two rollers spaced 8 ft. 9 in. center to center and is chain driven. The dirt and ashes are retained on it by 2-in. angles riveted to the belt across the full width of the belt and spaced 1 ft. 8 in. apart.

The debris which has been elevated by this belt is discharged into a hopper which in turn discharges it upon another conveyor belt mounted in an extension boom and running over rollers 24 ft. 2 in. center to center. This permits the final discharge of the accumulations at a convenient distance from one end of a hopper gondola or other type of open top car which is coupled next to the sweeper. The entire arrangement is housed over for protection from the weather and to secure maximum results in operation. The sweeper unit and car is handled by a locomotive, which can be one of the lightest engines in service as little power is



A Stretch of Track Before Sweeping

locomotives are used regularly. An average speed of about four miles an hour is maintained and the track is well cleaned. Tests indicate that the cost is approximately one-half of what it normally would be with hand labor.

The sweeper unit is used chiefly on the pusher grades of the Pennsylvania main line through the Allegheny mountains, i.e., on the westbound tracks from Altoona, Pa., to Gallitzin and on the eastbound tracks from Johnstown, Pa., to Gallitzin. In some instances, sidings and yard sections

required. The work is generally carried on under traffic and the best results are obtained with the device after a light rain has fallen.

When the unit was constructed an obsolete flat car was procured which was somewhat narrower than the more modern cars. This limited the length of the broom to seven feet. The unit is thus able to sweep out towards the end of the tie for only about 6 to 8 in. from the rail. It does, however, do good work, removing deep accumulations easily and thoroughly. This can be seen in the photographs, where an accumulation of about three inches or more was removed down to or slightly below the top of the ties. All rail fastenings were uncovered and freed from contact with the dirt. The experience to date after about 50 miles of sweeping has shown that the broom wears but little, there having been only about 1½ in. wear for that amount of sweeping. Heavier splints are being considered, however, not only with the idea of decreasing the wear but to secure a greater depth of cleaning between the ties. Another change contemplated involves the use of shallow buckets in a staggered arrangement on the main conveyor belt instead of the present angles. The broom itself picks up practically everything which may be on the track. Ordinarily about one car of dirt is secured per mile of track swept and this is picked up at a compara-



The Same Section of Track After Sweeping

tively low cost. A recent test made on a badly fouled section of track where the dirt was mixed with engine sand and well compacted, to determine the costs involved produced the following results:

Cost When Using Sweeper

Engine service (including engine and train crews' time, fuel, oil, enginehouse expense and water) 8 hours @ \$5.79.....	\$46.32
Sweeper operator—8 hours @ \$0.535.....	4.28
Laborers, three—8 hours—24 hours @ \$0.40.....	9.60
Gasoline—9 gal. @ \$0.29.....	2.61
Motor oil—1 gal. @ \$0.72.....	.72

Total.....\$63.53

3,828 ft. of track cleaned and dirt disposed of,
Cost per lin. ft.....\$0.0167

Cost for Manual Labor

One foreman—9 hours @ \$6.28.....	\$ 5.62
14 laborers—9 hours, 126 hours @ \$0.40.....	50.40

Total.....\$56.05

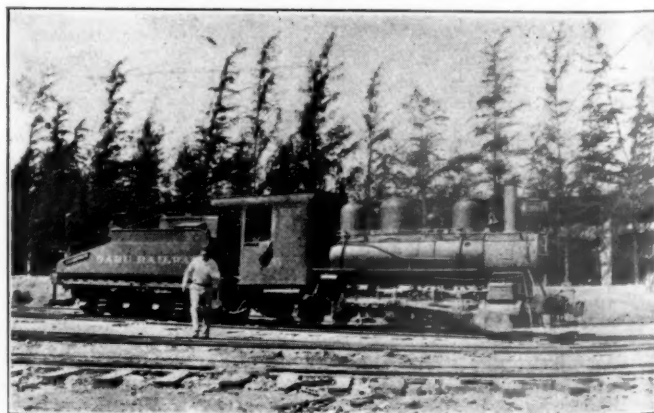
1,650 ft. of track cleaned and dirt disposed of,
Cost per lin. ft.....\$0.034

The new sweeper has been developed in the maintenance of way department of the Central region; W. D. Wiggins, chief engineer maintenance of way, and R. Faries, division engineer. The sweeper was designed and constructed by George Ehrenfeld, supervisor of track.

Conductors' and Trainmen's Wages to Stand in West

AN AGGREEMENT was signed in Chicago on October 3 between the Conference Committee of Managers, representing 34 western railroads, and the chief executive officers of the order of Railway Conductors and the Brotherhood of Railroad Trainmen. The present schedule of rules governing rates of pay and working conditions for trainmen and conductors will, under the agreement, continue until October 31, 1923, and thereafter subject to 30 days' written notice by either party. The eight-hour day basis will be maintained; time and a half will be paid for all work performed after eight hours. The managements and the unions' committees will consider eliminating or modifying local rules that have an important bearing on the efficiency and economy of operation but have little effect on compensation or that result in inequitable compensation, either high or low, to the end that such adjustments as may be mutually agreed for will be made. All questions as to wages and working conditions now before the United States Railroad Labor Board submitted by either party for decision will be withdrawn. This does not include disputes which have arisen over the interpretation of present rules on rates. The railways were represented by W. M. Jeffers, general manager, Union Pacific; the Brotherhood of Railway Trainmen by W. G. Lee, grand president; and the Order of Railway Conductors by L. E. Sheppard, grand president. The roads, including subsidiaries, represented by Mr. Jeffers were:

Atchison, Topeka & Santa Fe, including the Gulf Colorado & Santa Fe; Baltimore and Ohio Chicago Terminal; Belt Railway of Chicago; Big Fork & International Falls; Chicago & North Western; Chicago & Eastern Illinois; Chicago, Burlington & Quincy; Chicago, Milwaukee & St. Paul, including the Chicago, Milwaukee & Gary, Chicago & Western Indiana; Chicago, Rock Island & Pacific; Colorado & Southern; Chicago, St. Paul, Minneapolis & Omaha; Davenport, Rock Island & North Western; Des Moines Union; Denver & Rio Grande Western; Duluth, South Shore & Atlantic; El Paso & South Western; Fort Worth & Denver City; Great Northern; Illinois Central and the Yazoo & Mississippi Valley; Minneapolis, St. Paul and Sault Ste. Marie; Minneapolis & International; Missouri Pacific; Spokane, Portland & Seattle; St. Joseph Belt; St. Paul Bridge & Terminal; Terminal Railroad Association of St. Louis; Texas Midland; Trinity & Brazos Valley; Union Pacific; Union Stockyards Company of Omaha; Western Pacific.



A Switch Engine in the Honolulu Yard of the Oahu Railway, Hawaii

Commission Concludes Mileage Book Hearing

Merchants and Jobbers Join Commercial Travelers in Urging
Discount of 33 1/3 Per Cent

WASHINGTON, D. C.

THE MERCHANTS ASSOCIATION of New York, the Chicago Association of Commerce, the National Wholesale Grocers' Association and the American Wholesale Grocers' Association joined with representatives of the commercial travelers' organizations in urging the Interstate Commerce Commission to require the railroads to issue scrip coupon books at a discount of 33 1/3 per cent, at the concluding session of the hearing on mileage and scrip tickets before Commissioner Meyer at Washington on September 28. The railroads, while opposing any reduction in the present rates, urged that if any such request were complied with by the commission, the tickets should be restricted to six months from the date of issue and be issued in denominations no lower than \$200.

A. M. Loeb, president of the National Council of Traveling Men's Associations, was the concluding witness for the commercial travelers. He said the consensus of opinion of his associations is that scrip coupon books are preferable to mileage tickets and that they avoid the confusion incident to varying rates of fare in certain sections of the country. He expressed the opinion that a sale of such tickets at a discount of 33 1/3 per cent would stimulate both freight and passenger traffic of the railroads, but said that if he felt it would result in a loss of revenue, as claimed by the railroads, he would not favor it. He insisted that a large share of the business depression and unemployment of 1921 was due to the increased cost of transportation rather than that the falling off of passenger travel was due to the business depression and insisted that lower fares would be an inducement to business houses to send out more traveling salesmen, who would increase the volume of business and reduce unemployment. He said that firms had been very reluctant to send men into new territory and had also greatly reduced the number of smaller towns covered by their salesmen.

On cross-examination by H. W. Bikle, counsel for the railroads, he admitted that the average life of a coupon book such as he proposed would be only about 60 days and that the interest on the average amount of money advanced to the railroads by the sale of such a book would be only about 27 cents. He said that from 25 to 33 1/3 per cent of a traveling man's expenses consist of railroad transportation, amounting to \$300 to \$400 a year, and that the average travel per day would range from 50 to 100 miles after a man reaches his territory; but he said the average would be increased by the fact that his first jump and his return trip home would range as high as 3,000 miles in some instances. He said that the cost of travel is borne largely by the salesman himself because he works on a commission basis, but that business houses were also influenced because they could not ask their salesmen to make trips on a losing basis. He read letters from a number of firms, in reply to a questionnaire he had sent out, in which the majority stated that they had reduced the number of their salesmen in 1921 and that they would increase both the number and the mileage traveled if the passenger rates were lower.

Commissioner Lewis asked the witness if he had made any calculations to show whether 2.4 cents a mile would be a remunerative rate for the railroads, saying that in freight rate cases the shippers generally attempted to justify the rates proposed. Mr. Loeb said he had not done so, but that in proposing the 33 1/3 per cent reduction he had in mind the rates formerly made by the railroads and those still made for special fares. Commissioner Lewis said it is necessary that

the commission have some basis for making the calculation so that the rate will not be placed below actual production cost.

Business Houses Want Reduction in Travel Expense

J. C. Lincoln, traffic manager of the Merchants' Association of New York, said that the association has been co-operating with the commercial travelers' organizations because the merchants and jobbers feel that the high cost of transportation has reduced the number and the travel of their salesmen and that a lower rate would result in a more extensive use of commercial travelers, which would mean renewed business activity. He thought that a scrip form of ticket would be preferable to a mileage book, but suggested that they be issued in denominations equivalent to 2,000, 3,000 and 5,000 miles. He suggested that a 2,000 mile book could be confined to intra-territorial travel and that 3,000 or 5,000 books be used for inter-territorial travel. He said he had been asked by the Chicago Association of Commerce to express its sentiment in favor of an interchangeable mileage book, on the ground that the present cost of keeping salesmen on the road is almost prohibitive and only necessary travel is being done.

Mr. Lincoln also presented a letter from the National Wholesale Grocers' Association, which favored the adoption of interchangeable mileage books for salesmen, asserting that any saving in the cost of doing business would naturally be reflected in the cost to the consumer and an increase in the volume of business. It would be satisfied, however, with either an interchangeable mileage book or a scrip coupon ticket at a flat reduction of about 33 1/3 per cent and had suggested a denomination representing 3,000 miles or from \$100 to \$150. It was also suggested that the tickets be made transferable among the employees of the company that purchased the books, but Mr. Lincoln said that personally he thought the books should be non-transferable. Former Senator Hoke Smith filed a letter setting forth the views of the American Wholesale Grocers' Association, which he said were along the same lines as the testimony that had been presented.

Railroads Propose Regulations

C. A. Fox, chairman of the Central Passenger Association, was recalled to the stand to give some estimates as to the loss in revenues that would result from the use of various forms of tickets and to offer some suggestions as to the form of regulations that should be issued if the commission orders a reduced rate. In reply to the assertions of representatives of commercial travelers that the railroads had formerly made a reduction of 33 1/3 per cent mileage books, Mr. Fox said that before federal control the reductions in normal fares and increases in the mileage ticket rates had reduced the discount to approximately 10 per cent in New England territory, 10 per cent in Central and Trunk Line territory, 20 per cent in Southeastern territory and 16 2/3 per cent in the majority of the Western territory and that there was no reduction below the intrastate basis where the State fares were two cents a mile.

Counsel for the traveling men's organizations and the representative of the American Hotel Association protested against the proposal to restrict the proposed coupon book to six months and \$200, outlined by Mr. Fox, on the ground that this would defeat the purpose of the book. Mr. Fox said

that these figures were based on the testimony of representatives of the commercial travelers that traveling men spend nine months of the year on the road, averaging 50 miles per day, or 13,500 miles per year. A \$200 book would be equivalent to 5,555 miles and would, therefore, more than fulfill the average time requirements. Mr. Bickle also pointed out that any less amount of travel than this could hardly be called intensive travel sufficient to justify a reduced rate. Mr. Fox said the carriers desire to make it entirely clear that in complying with the request of the commission for a statement of the rules and regulations which they would deem reasonable if the commission should decide to require the issuance of a reduced rate scrip, the submission of these suggestions is not to be construed as in any way an indication on their part that such reduced rate scrip was justified. Mr. Fox also proposed that a photograph signature form of ticket shall be used.

Mr. Fox said that the coupons should be good only when exchanged for one-way tickets, issued at face value, representing full normal one-way fares, and not be good for any other services or charges. Where passenger boards train at a non-agency station, or at a station not open for the sale of tickets, it should be honored by conductor on trains within the run of the initial conductor only. Exchange train tickets issued by agents in exchange for scrip coupons should be accepted by conductors only when presented in connection with the scrip ticket.

The requirement that coupons be exchanged at ticket offices for train exchange tickets is considered an item of paramount importance to the carriers, he said, as the only means by which they may be assured in an accounting way of securing the revenues to which they are entitled in the use of any form of an interchangeable scrip ticket. It would be primarily a dangerous procedure to interfere with a conductor's safe operation of his train by compelling him to assume the complicated detail and burden of handling a large number of passengers holding mileage tickets, the percentage of which, while fluctuating constantly, might reasonably range from 20 per cent to 50 per cent or even more of his total passengers. A system of honoring tickets directly on trains would be equivalent to establishing a traveling ticket office. It ordinarily requires about two years to educate a ticket seller to render that character and degree of service that the railroads endeavor to afford at their ticket counters, so it will be seen what a task will be put on a conductor who is not skilled in the sale of interline tickets. Even if the acceptance on trains were confined to the line of a single system or to through car runs there would be many serious complications, difficult and expensive to overcome. Moreover, hundreds of thousands of short trips are made where the detachments would be represented by minute slips of paper. Conductors have not the facilities for carrying and safeguarding these detachments which have a direct money value to the honoring railroads. Ticket offices are equipped with safes and the employees are bonded, which is another reason why the business should be conducted at the ticket offices instead of on trains, if any form of reduced rate scrip is to be introduced.

The question of the regulations to be adopted in connection with a scrip ticket is a complicated matter of serious difficulty, Mr. Fox said. This difficulty is enhanced by the fact that the carriers do not know whether the commission will require any reduction in the present basis of fares, and if a reduction should happen, they do not know what the measure of the reduction would be.

For this reason they have felt seriously handicapped in making the suggestions and, accordingly, express the belief that they could deal with the matter more adequately and satisfactorily at a later stage of the proceeding after they have been apprised of the commission's conclusion as to the primary question, whether there is to be any reduction in the scrip ticket fare.

In the formulation of the precise regulations it will be necessary to go into greater details and to give more careful consideration to phraseology than has been possible in the time available at the present hearing; and while the carriers think that their suggestions cover the matters of greatest moment they are fearful that they have overlooked other matters which are of importance to them as well as to the traveling public.

Estimated Reduction in Revenues

As to the request made by the commission that the carriers submit approximations of the percentage of travel that would be handled on mileage and scrip books, and as to the amount of the reduction from the sales of such books in the several denominations of 5,000, 3,000, 2,500 and 1,000 miles as to mileage books, and \$180, \$108, \$90 and \$36 as to scrip books, Mr. Fox said that, except as to facts which had already been presented and as previously alluded to in the hearing, the carriers have at command no data of a statistical character as a result of experiences of the past in the sales of books over individual carriers and those of a joint character good in a restricted region that would afford foundation for definite, accurate conclusions as to what would happen if the commission should, contrary to the earnest representations of the carriers, urge the sale of a reduced rate scrip ticket. They have avoided mentioning specifically the extent of the possible losses because of this lack of dependable data. In deference, however, to the request of the commission a tabulation had been made in the form requested by the commission, and for the purpose of making the statement plainer, in addition to showing the percentage of travel that would likely avail of the use of a mileage book, there is also shown the total revenue that would be realized from such books. To simplify the computations, the carriers have assumed roughly that in round figures the total average revenue derivable from ordinary one-way tickets sold at full normal fares to be about one billion dollars annually; this omits revenues from commutation, surcharge, and all forms of reduced rate tickets.

While detailed statistics are not available, it is known that prior to federal control, when mileage was actively on sale in the several regions of the country, about 18 per cent of the total revenue was obtained from holders of mileage tickets of limited scope; about 20 per cent in Trunk Line territory, 20 per cent in Southeastern territory, 15 per cent in Southwestern territory. In Central Passenger and Western Passenger Association territories, where the 2-cent fare laws existed intrastate during the past 15 years, sales were practically negligible because of the fact such books as were on sale were only available for interstate transportation, the reduction in Central Passenger Association territory at the time being only 10 per cent; therefore the recent experiences in those regions would be of no value as contributing light on this question.

Prior to the 2-cent fare laws, however, mileage tickets were sold very extensively throughout Central Passenger and Western Passenger Association territories, and their utilization was constantly increasing from year to year. In the extreme Western part of the United States percentages as a territorial proposition are not available, but it is known that in certain instances in those regions the use of mileage was not so extensive as in the other sections referred to.

"While the carriers have never had effective a nation-wide interchangeable mileage or scrip book of any character, except the present scrip book sold at full normal fare," Mr. Fox said, "it is the universal view of the carriers that the sale of such a book would be far in excess of any experiences of the past, and therefore the percentages which are submitted in the statement take cognizance of this fact and are increased with due consideration therefor. The approximations are the very best judgment of and represent the consensus of views of the carriers. In making these submissions, however, it was

desired to reiterate that they are purely speculative. The commercial travelers themselves, by reason of their experience and knowledge of the extent of travel of the traveling men, have made some speculations which the commission will no doubt deem worthy of careful consideration in this relation, and without the thought of making comment one way or the other concerning their accuracy, it is desired to point out that it was testified in one of the hearings by one of their representatives that the traveling men spend nine months of the year on the road, averaging 50 miles per day, or 13,500 miles per year. It was also stated that the number of commercial travelers identified with the affiliated organizations represented number 676,000. The total distance they would travel, based on these figures, would amount to 9,126,000,000 passenger miles, which, computed at the normal tariff of 3.6 cents per mile, would in round figures amount to about \$325,000,000. As this does not take cognizance of the considerable additional travel that would move on mileage tickets, it is obvious that the traveling men themselves consider that the railroads would receive a very large percentage of their total revenue from passengers holding such a form of transportation. It is also manifest that any per cent whatever that might be applied to these figures would result in a material reduction in revenues."

The tabulation estimating the amount of reduction, on the basis of a book identified by photograph and autograph, use limited to purchaser, time limit, one year, was as follows:

Reduction	Mileage Book	Scrip Book	Estimated per cent of all travel using		Total Amount of Reduction (Estimated)	
			Mileage Book %	Scrip Book %	Mileage Book \$	Scrip Book \$
30%	5,000 M.	\$180	24% \$240,000,000	do	\$72,000,000	do
25%	"	"	21% \$210,000,000	do	\$52,500,000	do
20%	"	"	18% \$180,000,000	do	\$36,000,000	do
15%	"	"	15% \$150,000,000	do	\$22,500,000	do
25%	3,000 M.	\$108	30% \$300,000,000	do	\$75,000,000	do
20%	"	"	25% \$250,000,000	do	\$50,000,000	do
15%	"	"	20% \$200,000,000	do	\$30,000,000	do
25%	2,500 M.	\$90	35% \$350,000,000	do	\$87,500,000	do
20%	"	"	30% \$300,000,000	do	\$60,000,000	do
20%	1,000 M.	\$36	40% \$400,000,000	do	\$80,000,000	do

When asked whether it was the purpose of the carriers to retard or accelerate the sale of such tickets, Mr. Fox said that the carriers only desire reasonable protection, and if such a ticket were adopted it was his thought that there should be conferences among the representatives of the railroads and of the travelers for the purpose of working out regulations that would be satisfactory and make the use of the book as convenient as possible. Asked why the railroads desire to throw further restrictions around the use of the books than they did in the past, Mr. Fox said that possibly the carriers consider that they made some mistakes in the past which should not be expected to govern them for the future.

Briefs are to be submitted by November 1 and it is expected that oral arguments will be held before the full commission some time in November.

DAN HEALY, one of the best known dining car conductors in the United States, died at his home in Chicago on September 25. Mr. Healy has been steward in charge of the dining car on the Pioneer Limited of the Chicago, Milwaukee & St. Paul, between Chicago and Milwaukee, Wis., for about 20 years and has been in the service of that company since 1898.

Progress In Valuation Work

WASHINGTON, D. C.

THE RAILROAD valuation work, on which the Interstate Commerce Commission has been engaged during the past eight years, is now rapidly coming to a head and it is expected that considerable time of the commission during the next 12 months will be devoted to various phases of the work. Tentative valuation reports have been issued by the Bureau of Valuation in greatly increased numbers since the centralization of the forces of the commission at Washington and its reorganization, which was effected about January 1 of this year.

Up to August 31 there had been served 504 accounting section reports, covering 134,272 miles, or 54.14 per cent of the inventoried main line mileage; 584 land section reports, covering 132,067 miles, or 53.25 per cent of the total; and 593 engineering section reports covering 168,730 miles, or 68.03 per cent of the total. In February the three sections began synchronized work on definite six-month programs. Each section is now bringing forward its work on selected carriers. From now on the work will primarily be focused on the roads having annual revenues of \$25,000,000 or over, work on the less important roads being carried on at the same time. The present six-month program calls for the completion of underlying reports by the three sections on practically 190,000 miles by the end of 1922. It is the expectation that by the end of the fiscal year (June 30, 1923) underlying reports will have been issued on all except six of the so-called \$25,000,000 roads, and that these six will be included in the program for the succeeding fiscal year 1923-24. It is the hope of those directly in charge of the work to carry it to a stage of completion which will be marked by the service of all underlying reports before the expiration of the next succeeding fiscal year.

The commission has now issued 258 tentative valuation reports. They cover a total of only 37,008 miles, or 14.92 per cent of the total mileage. Thus far, tentative valuation reports, as a rule, have been on the smaller carriers, though the tentative reports are out for the Chicago, Rock Island & Pacific, the Kansas City Southern, and several other large carriers. The next few months will see the issuance of tentative valuation reports covering some of the larger companies. According to the plans, the tentative valuations will be rapidly advanced so that the mileage covered by them will be brought up more nearly to that of the underlying reports. To facilitate the production of tentative valuation reports, a new standardized form of report was put into effect on September 15.

The valuation law gives to the carrier or other interested party 30 days after the service of the tentative report in which to file protest, and provides that in case of no protest the tentative valuation becomes final. Ordinarily none but the smaller and less important carriers have failed to file protest. In 99 cases, however, neither the carrier nor any one in interest has protested.

The commission has actively begun hearings on these protests. Fourteen hearings were set for the spring and summer and the fall dockets will carry an impressive list of such hearings. The underlying work is thus being moved to that stage where it can reasonably be expected that final valuation reports will begin to appear. Among the important cases which now stand submitted on final argument are the Kansas City Southern, the San Pedro, Los Angeles & Salt Lake, the Atlanta, Birmingham & Atlantic and the Winston-Salem.

Great interest will attach to the final reports of the Kansas City Southern and Atlanta, Birmingham & Atlantic because of the nature of the arguments made by S. W. Moore in the Kansas City Southern case, laying insistence on the element of earning power as a most important, if not determining, factor in railroad valuation. On the other hand the Atlanta, Birmingham & Atlantic has been notorious as a deficit road.

It is expected that the commission will devote a considerable part of its time this fall or early winter to these and other final valuation considerations. The final determinations in the first few cases will, of course, be accepted by the public as indicating the policy of the commission and as precedents. On the other hand, they will be accepted by the staff of the commission as indicating its policy.

There has been a growing disposition in the last two or three years, and especially in recent months, both around the Capitol and at the commission offices to push the valuation to a definite stage of completion, though necessarily the valuation of the railroads can never be called completed. This is recognized by the law, which charges the commission with the duty of keeping the valuation, once determined, up to date. Even after the final values have been placed on every railroad there will remain the considerable work of keeping valuations current for utilization in the diverse regulatory activities of the commission. The commission in reaching its decision both in Ex Parte 74 and Reduced Rates, 1922, under the Transportation Act of 1920, brought impressively before the country the needs of valuation. The larger the percentage of railroad property covered by reports the greater is the assurance imparted to the commission in the adoption of values for general rate cases. It is the expectation that by the time another rate investigation occurs the commission will have available for guidance not only the underlying reports covering most of the mileage of the country but also a considerable number of final reports. The commission also realizes the value of reports carrying what is termed "a large diversity factor." It will obtain this by having a large number of reports covering large as well as small roads located in all parts of the country and constructed and operated under all conditions.

Certain divisions of the commission, particularly Division 4, which deals with financial matters, abandonments, etc., are constantly finding an increasing need of valuation reports. For these reasons as well as others, the commission is now insistent on pushing along the valuation work at the greatest speed consistent with thoroughness.

The valuation work falls under the jurisdiction of Division 1, composed of Chairman McChord and Commissioners Meyer, Aitchison and Lewis. It is thought that after the full commission has disposed of a few representative leading cases in which the controlling principles will be enunciated, this division will decide practically all valuation cases.

The Bureau of Valuation has, since January 1 of this year, been under the administrative control of Commissioner E. I. Lewis. Charles F. Staples is acting director, having succeeded the late Director Prouty. T. P. Artaud is executive assistant, and is also supervisor of land appraisals; H. M. Jones, supervising engineer; J. M. Willey, supervisor of accounts; and C. W. Needham, solicitor. The force of the bureau numbers 548. The concentration of the employees in Washington is regarded by the commission as having been attended with very gratifying results.

Mr. Artaud recently gave to the House Committee on Appropriations, when the bureau's appropriation for 1922-23 was under consideration, an estimate that all underlying reports and tentative valuations would be completed by June 30, 1924. Obviously, it would be hazardous to attempt an estimate of the length of time which will be consumed by the hearings and rehearings on the protests which the commission must hold before arriving at its conclusion as to final values. It is a very difficult matter to foretell the length of time any litigation will consume. No one expects the carriers to leave any stone unturned to secure a recognition of all the elements of value claimed by them to inhere in their properties.

Up to the end of June, 1922, the working cost to the government of the valuation work was \$23,266,000. According to the Presidents' Conference Committee, the organ-

ization looking after the carriers' side of the valuation work, the railroads had expended up to June 30, 1921, \$54,120,957 in protecting their interest. It is understood that the estimate to date is in excess of \$60,000,000.

The field work was practically completed in the fall of 1921. The district offices in Chattanooga, Chicago, Kansas City and San Francisco were moved to Washington in the plan of centralization for the second step in the work, which consists of collating the data obtained by the field parties which first reaches the carriers and the public in the underlying reports of the land, engineering and accounting sections, after which follow the tentative valuation reports.

Pennsylvania to Make Extensive Additions to Altoona Works

THE PENNSYLVANIA SYSTEM has announced the program for extensive improvements to be made at Altoona, Pa., including the construction of two extremely large repair shops and the electrification of the heavy grades west of Altoona. The first of the improvements will be made at Juniata shops and includes the building of a new erecting and machine shop, 340 ft. by 670 ft., including a midway crane runway with a 105 ft. span and 715 ft. long. This large shop will be devoted to repairing and building locomotives, and will accommodate 49 locomotives at one time. The framework will be of steel and the walls of brick. The locomotives erecting bays will have two 250-ton capacity electric traveling cranes for lifting locomotives, and six 15-ton capacity cranes for lighter work. The machine bays will have two 25-ton capacity cranes, together with jib cranes of from 1 to 8 tons capacity.

There will also be erected a reinforced concrete storehouse, three stories high, with basement, which building is to be 60 ft. by 400 ft. A crane runway for handling material will also be erected with a 95-ft. span and about 600 ft. long.

The building of the shop and storehouse will necessitate changes in the existing buildings as follows: the scale shop will be moved to a new location and will be changed to a flue shop, the machinery now in the scale shop being transferred to the present paint shop. The present storehouse building will be moved to a new location and will be used as a cab shop. The present erecting shop will be changed to a paint shop, while machinery will be installed in the present paint shop and the name changed to Machine Shop No. 2.

At the Altoona car shops will be located facilities for preparing repaired locomotives for service. The present circular building, known as the freight car shop, will be remodelled and 15 stalls will be used as a finishing shop. East of this shop will be located the necessary ash pits and coal handling facilities.

Further additions to the shops at Altoona will be made following the electrification of the heavy grade west of the city. After the electrification is completed, the roundhouse at Sixteenth street, Altoona, will be abandoned. On the site of the roundhouse a duplicate of the erecting and machine shop at Juniata will be built and the present erecting shop at the Altoona machine shop will be fitted up for the use of other departments.

FREIGHT CLAIM PAYMENTS of the Illinois Central were reduced by more than \$1,000,000 during the first seven months of 1922, as compared with the first seven months of 1921, and there was also a decrease of 23,524 in the total number of claims presented for this same period. In the first seven months of this year the Illinois Central paid out in freight claims an average of \$2.27 per minute, as compared with \$5.64 per minute in the corresponding period of last year.

Railroad Employment Bureau Functions in Strike

The Advantages of Such a Bureau Were Strikingly Demonstrated in the Emergency

By An Employment Officer

BECAUSE ITS VALUE is not well understood, comparatively few railroads maintain employment bureaus charged with the responsibility of recruiting personnel. The practice of most roads is for the various departments and divisions to receive applications for employment and to hire men as needed, there being little co-ordination of effort between the departments.

A western railroad, as a part of its experiment in personnel activities, about four years ago established an employment bureau which, together with its complementary activities, was placed in charge of a general officer. At the request of the chief engineer this bureau has employed all maintenance of way forces and in addition has been active in securing clerical, mechanical and train service employees.

As the entire matter was being treated experimentally, no effort was made to force the services of the bureau upon the heads of departments or division superintendents, but they were from time to time kept advised that the services of the bureau were at their disposal at any time they cared to avail themselves of them. The way this worked out was that whenever an employing officer needed men and did not have desirable applicants, he called upon the employment bureau for assistance. This has resulted in the bureaus gaining experience in the employment of men of all occupations.

Pre-Strike Forecast

Realizing that a strike of shopmen was imminent, the officer in charge of the employment bureau planned his campaign for recruiting a new corps of mechanical workers upon its occurrence. The preparatory work consisted of a survey of the local field and adjacent territory to determine the possibility of recruiting a new force quickly and of maintaining this force after it had been recruited. A similar survey was made of outlying territory and the employment bureau force of four people was so organized as to function efficiently during the strike period.

During the latter days of June the employment bureau had kept the road's management advised of the possibility of recruiting mechanical workers, but on June 30 it was decided not to depend upon the employment bureau in the emergency of the strike, but to use an outside organization for that purpose. Therefore, when the strike came on July 1 this organization of professional strike-breakers was placed in charge of recruiting, but on the morning of July 5, the failure of this method having become apparent, the entire responsibility for recruiting was placed upon the road's own employment bureau.

Recruiting During First Days of Strike

Upon assuming this responsibility, the employment bureau took over from the strike-breaking organization such men as it was thought could function efficiently in its pre-determined plan and these men were used as special agents to locate men in the city in which the road's headquarters is located. Men were also sent to towns served by the railroad to, if possible, recruit men there.

Although it was found impracticable to employ men in the towns along the road, 18 men were employed in the headquarters city July 5; 29, July 6; 22, July 7; 21, July 8; and 38, July 9. This was an unexpectedly good showing

but an increase in the daily average was necessary to build up an efficient working force.

While men were being recruited in the headquarters city a survey was being made in large off-line cities within a radius of 500 miles from the headquarters city to determine whether conditions warranted sending agents to prospect these places. The survey was made through the aid of blind advertisements carried in newspapers in these cities. These advertisements read, "Experienced Railroad Shop Mechanics Required for Small Railroad in the Northwest. Apply to Box — Times Office." Arrangements were made with the newspapers to forward replies as received and if and when it was found there were sufficient applicants to justify it, a special agent was sent to the city to interview these applicants. At the same time instructions were wired to the newspapers to insert display advertising reading thus, "Special Agent of North and South Railroad will be in Salt Lake Thursday to Interview Applicants for Employment. Apply Smith Hotel."

Where an applicant's reply seemed to warrant it, a telegram was sent advising him to call upon the special agent and in all cases letters were written to what appeared to be desirable applicants to call upon the special agent upon his arrival. In prospecting one city early in the strike, the special agent employed an automobile and called upon all persons from whom applications had been received. The results in two cities warranted maintaining headquarters and special agents, one for a period of several weeks and the other throughout the strike. Special agents were sent to other cities for short periods of time.

Unusual Methods of Recruiting

During the period of these out-of-town activities the employment bureau staff at headquarters was engaged in prospecting various possibilities for the securing of mechanics. The officer in charge was fortunate in securing the co-operation of the personnel officers of street railway companies, other public utilities and large corporations who permitted members of his staff to go through their application files and to copy therefrom data as to what appeared to be desirable employees. Wherever a telephone number was given, the applicant was phoned to and asked if he cared to consider employment under strike conditions. Where no telephone number was given individual letters were addressed to the applicants. During this same period the names of all mechanics appearing in the city directory were abstracted and a circular letter individually addressed was mailed to each of them. This letter read:

"You have been recommended to us as a skilled (appropriate craft filled in). We are in need of skilled mechanics for our shops at various points.

"Our road is being operated under rates of pay fixed by the United States Railroad Labor Board under the protection of an injunction of the United States Court and all workers are fully protected from any danger or interference. While strike conditions exist, board and lodging are furnished free of charge. All positions are permanent.

"We should be glad to have you call at our office, 2 North street, in the morning to talk it over."

This was on the company's official letterhead, bore the facsimile signature of the general officer in charge and the

postscript, "All applications treated confidentially." While a great many of these letters were mailed, not very many were responded to, but as the expense involved was small, the effort was worth while.

Several shipyards and industrial plants were about to reduce forces because of the general business depression and especially selected mechanics were placed in these plants by the employment bureau to inform mechanics of the possibility and desirability of securing employment with this particular railroad. Prospective applicants were supplied with the address of the employment bureau by these representatives and quite a few mechanics were secured by this means.

Many other "kinks" were used by the employment bureau, the staff of which held itself receptive to any suggestion as to possible means of obtaining men. On July 31 the working force was nearly 60 per cent of the normal force and on August 31 over 80 per cent.

Selection of Employees

During the early part of the strike no effort was made to separate desirable from undesirable employees, the whole effort being to build numerical strength rather than an efficient working force. This was done for strategic reasons and in the hope which afterwards proved true that in striving for quantity rather than quality at least some good mechanics would be secured. As numerical strength was gained greater emphasis was placed upon the selection of desirable employees and the mechanical department was called upon for a series of questions and answers applicable to each craft which were used in determining whether men applying for work were actually the kind of men they represented themselves to be.

The use of the examination system produced excellent results and permitted of the weeding out of the men who had misrepresented themselves during the early part of the strike and their replacement with experienced mechanics. It probably would have been better if mechanics or mechanical department officials could have been assigned to the employment bureau from the very commencement of the strike, but the services of every man in the mechanical department were required to maintain the road's motive power and rolling stock and this was therefore impossible. As a matter of fact, probably the greatest value of using the organized employment service for recruiting purposes was that it relieved the mechanical department of all responsibility for securing men. The men were recruited by the employment bureau and turned over to the mechanical department at its principal shops so that the motive power department officers could give their entire time to shop and road affairs.

The strike-breaking organization that had been originally engaged to recruit working forces was also to take charge of the employment of guards and the supervision of property protection. It was able to supply but a few guards from its own organization and the some hundreds of guards that it was necessary to employ were also engaged through the railroad company's employment bureau. The delegating of this duty to the employment bureau had the same effect upon the guard service as the employment of mechanics had upon the mechanical service. The chief special agent and his lieutenants were relieved of the necessity of recruiting men and were able to give their entire time to the supervision of protection to company property and employees.

Maintenance of Records

In connection with the employment of maintenance of way men, the employment bureau some years ago adopted to its own use the card system described by William S. Wollner in an article entitled, "Maintenance Labor Turn-over Statistics" in the June, 1921, issue of the Railway Maintenance Engineer, and as the bureau's activities widened into the employment of other classes of men, this same system

was used. The purpose of this card system is, as is fully described in the article mentioned, to furnish an office record of all men employed, a notification to the foreman that the man has been employed, acknowledgment to the employment bureau that the man has arrived on the job and a record when he leaves the service.

Upon taking over the recruiting work at the commencement of the strike, the employment bureau merely continued the use of this system, applying it to the new condition. This gave an office record of the men employed and a notification to the foreman of his employment. It was realized that the mechanical department force was far too busily engaged otherwise to return the card notifying the bureau of the employee's arrival, or the card notifying it of his leaving the service. However, as all men were delivered to the shops under escort this was of no importance. This system of employment records has proven itself extremely easy of execution while working under pressure of time, the four cards being filled out at one impression on the typewriter, the office record portion being available for reference in the employment bureau and the notification portion proving of great value in the mechanical department in making up pay rolls, handling mail for employees, and work of a kindred nature.

In addition to the card system just mentioned, the only other record maintained was a form hastily prepared at the commencement of the strike and which each new employee signed, stating that he knew that he was employed under strike conditions. This was done to comply with the state law. Regular passengers' tickets were used for the moving of strike-breakers in order to lessen the possibility of their identification and friction with trainmen and other employees who were not involved in the strike.

Value of Employment Bureau Demonstrated

As stated earlier in this article, this employment bureau was maintained upon an experimental basis insofar as others than the maintenance of way department was concerned. While the justification of the expense of conducting the bureau and the associated personnel activities has never been questioned by the road's management, it is possible that this value would have been questioned by other railroad officials who were not familiar with the objective and the results obtained. In view of the part taken by this organization in breaking the strike, there can now be no question but that the money spent in its maintenance was not only fully justified but that it has proved an excellent investment.

New Development in Traveling Cranes for Shops

ONE OF THE MOST formidable problems imposed in the design of a locomotive shop concerns the means provided for moving the locomotives in and out of the building, or for shifting them from one position to another. This not only involves the character of the crane provided but also the arrangement of the track and the shape and size of the building. These considerations lend interest to a recent development in shop cranes embodying an added feature, namely: a facility for turning the locomotive through a horizontal angle of any desired amount. A crane of this type was recently installed in the River Rouge repair shop of the Detroit, Toledo & Ironton, and is illustrated in the photographs. A shop designed to take full advantage of a crane of this type is said to embody many of the advantages of shops of both the longitudinal and transverse type without introducing some of the disadvantages peculiar to each.

The transverse shop, having the locomotives arranged

crosswise to the longitudinal axis of the building, offers more economical use of the floor space, is convenient to work benches along the building walls and facilitates the floor traffic for handling material. The locomotives are placed on the transverse tracks either by means of an outside transfer table, which requires almost as much ground space as the shop

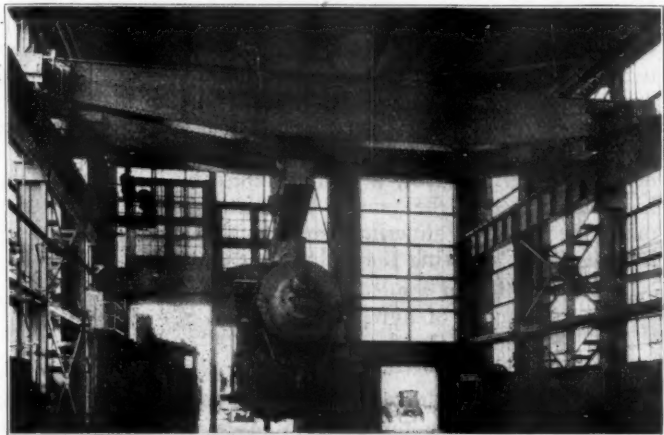


Fig. 1. The Locomotive in the Position That It Was Received on Longitudinal Track

itself, or with the assistance of overhead traveling cranes of the double trolley type, which in turn necessitate a building high enough so that one locomotive can be carried above the others.

In the longitudinal shop the construction tracks run parallel with the axis of the building and the locomotives are placed on these tracks one behind the other. They are

deg. as it is brought in so as to place it on any one of the transverse tracks, it would be possible to realize the working advantages of the transverse shop without being confronted with the expenses and awkward means required to bring in or take out the locomotive. This is accomplished with the aid of the new crane by incorporating a turntable in the crane trolley so that the crane has four different movements, namely: hoisting, cross travel, longitudinal travel and horizontal rotation. Thus it is practical to lift the locomotive off the longitudinal track, carry it down the shop and swing it into transverse position wherever there is a vacant repair pit. At no times is it necessary to lift one locomotive above another, in fact it is sufficient simply to raise it high enough to clear the track.

By reference to illustrations it will be noted that the crane trolley consists essentially of two parts; one upper revolving frame and one lower or trolley frame proper. The upper frame carries the hoisting machinery only. Two sets of ropes, spread well apart, carry a lifting beam which is provided with adjustable slings to accommodate different sizes and shapes of locomotives or boilers. On the underside of this frame is attached a combination ring gear track or "roller path," which in turn rests on conical rollers set in the lower frame. This lower frame also is provided with horizontal guide wheels to keep the roller path central. Motor-driven turning machinery is mounted on the lower frame, having a large pinion meshing into the rack of the roller path. The lower trolley frame also is equipped with customary motor-driven machinery for cross travel. The crane bridge is practically standard.

The speed of rotation of the turntable is one and one-half revolutions per minute. The crane in the D. T. & I. shop has a span of 56 ft. and the two falls or hoisting tackles each have a capacity of 50 tons. No auxiliary hoist is

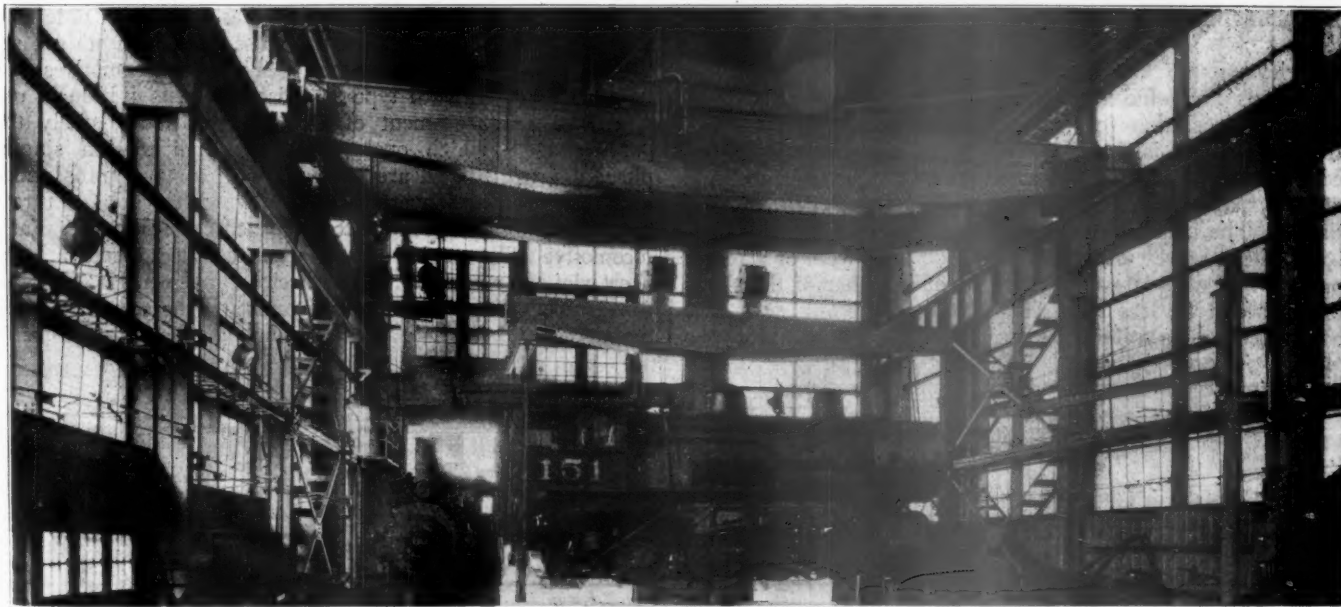


Fig. 2. The Locomotive Turned Into Position to Set on One of the Transverse Tracks

handled by two single trolley cranes and to economize space the buildings should preferably be wide enough to keep one or more tracks clear for carrying the engines to and from their different locations. The selection of either type of shop, is, of course, dependent upon many local conditions as well.

If, instead of providing either the strictly longitudinal or transverse type of shop, one could be designed with a grid of transverse tracks supplemented by one longitudinal track, upon which the locomotives would be brought into the building, and with facilities for turning each engine 90

provided in this crane but it could be readily added to a crane of this type if desired. The distance between the two hoist connections to the lifting beam is seven feet, provision being made to insure that the center of gravity of the locomotive lies between these limits by facilities for eight different positions of the front end sling and two alternate positions of the yoke on the lifting beam. This lifting beam can easily be detached and replaced by a short beam with a simple hook for use in ordinary crane service. This new crane is built by the Shaw Crane Works of Manning, Maxwell & Moore, New York.

Lehigh Valley Reaches Agreement with Employees' Association

THE LEHIGH VALLEY has made public the text of its agreement with the newly formed Association of Maintenance of Equipment Employees of the Lehigh Valley Railroad. In general, this agreement provides for three separate classifications viz., craftsmen, promoted helpers and helpers. The rates of craftsmen vary from 72 cents to 80 cents per hour; of promoted helpers from 53 cents to 63 cents an hour; helpers receive 47 cents the first year and 49 cents thereafter. Passenger carmen, gang leaders on freight car repairs, etc., receive regular craftsmen's wages, but freight carmen and inspectors are rated from 63 cents to 65 cents per hour. Promoted helpers in the car department are rated at from 53 cents to 60 cents and car cleaners at 37 cents an hour. Regular apprentices begin at 27 cents an hour and helper apprentices at 47 cents.

The eight hour day is recognized as standard for all employees whose work requires continuous application. Normal working hours for all employees, however, are bulletined and overtime rates apply only for work done in excess of normal bulletined hours. Overtime rates are paid for Sunday and holiday work except for employees who are regularly assigned for work on these days. Employees called to work in emergency before or after bulletined hours are allowed a minimum of three hours pay for two hours work or less. Employees called upon to do road work are paid straight time for traveling and waiting and for the first eight hours of work and time worked in excess of eight hours is paid for at overtime rates.

It is provided that seniority will govern only when ability, loyalty and fitness are equal, the employer to be the judge. Employees transferred from one point to another, except when reductions in forces are made, will carry their seniority with them.

Grievances, if they cannot be satisfactorily settled by the employees and officers concerned, are entrusted to the employees' association for adjustment. The starting point of this adjustment is the local committee. There is one local committee representing each craft on every operating division of the road and at the general shops at Packerton and Sayre. The members of these committees are elected on the basis of one representative for each 100 employees or a major portion thereof. If on any division or in either of the shops there should be less than 100 employees in any craft, the committee representing these employees will consist of two

is elected by the local committee chairman of that craft.

For purposes of meeting with the management the general committee, acting with an equal number of representatives appointed by the management, constitutes what is known as the joint board. The officers of this board are chairman and vice-chairman. The office of chairman is to be filled alternately by a representative of the employees and a representative of the management. The employees and the management have equal voting power on the joint board and a two-thirds vote is necessary for a decision. The joint board has a secretary whose pay is assumed by the management.

When a dispute has been referred to the local committee which it cannot settle satisfactorily with the master mechanic or shop superintendent, a joint submission is made by the local committee to the general committee and by the master mechanic or shop superintendent to the superintendent of motive power, covering the following points:

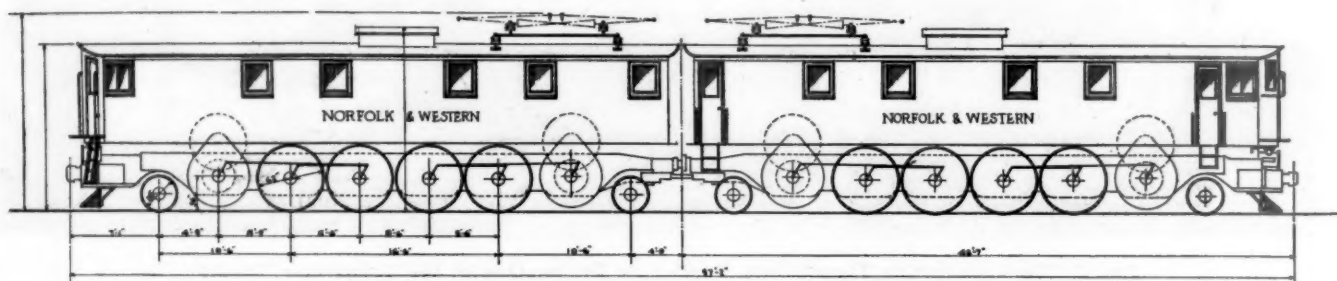
- (1) Question at issue.
- (2) Statement of agreed upon facts.
- (3) Position of local committee.
- (4) Position of master mechanic or shop superintendent.

In the event that the general committee and superintendent of motive power are not able to reach an agreement, the point at issue is placed before the joint board.

The agreement contains no provisions against piece work or bonus payments, which leaves the company free to establish this system of payment wherever it sees fit.

New Electric Locomotives for the Norfolk & Western

AS NOTED in the September 9, 1922, issue of the *Railway Age*, the Norfolk & Western has placed an order for four electric locomotives for use on its mountain division known as the Elkhorn grade. The new locomotives will be of the same general type as those which have been in use since the commencement of electric operation, namely the "split-phase," which operate from a high tension single-phase a.c. trolley and are provided with a static transformer and rotary phase-converter for supplying low voltage three-phase power to the induction type traction motors. Each locomotive will consist of two units coupled together by a short rigid bar or link. The wheel arrangement is 2-8-2 + 2-8-2. The pony trucks on each unit will be equalized with the drivers, the whole arrangement of wheels and spring



Preliminary Drawing of Double-Unit Locomotive, Showing Wheel Arrangement and Location of Traction Motors

members elected from their number. The committeemen must be in the employ of the company and adult American citizens. Nominations are by petition which must be signed by 25 voters in each craft or by 25 per cent of the voters in that craft. Above the local committees is the general committee, which is comprised of a general chairman together with a general craft chairman from each respective craft. The general chairman is elected by the local committee chairman of all crafts. The general craft chairman of each craft

suspension being similar to a Mikado type steam locomotive. There will be four motors geared to jackshafts, connected in turn to driving wheels by side rods, two single-motors being provided per unit (one per jackshaft). This arrangement is different from the present locomotives which are 2-4-4-2 + 2-4-4-2 and have two twin motors for each cab.

The motors and jackshafts will be located between the pony truck wheels and the driving wheels, the main motor

rods being connected to the second pair of drivers, the first and second pair of drivers being coupled.

The cab of each unit will be rigidly secured to the main engine frames, and the main apparatus, such as motors, phase-converter, transformer, etc., will be supported directly on the engine frames and cross-tie castings.

The motors are rated at 1,000 hp. each, and have a pinion at each end of the rotor shaft with collectors outside of the pinions. The locomotives will have about 30 per cent greater capacity than the present locomotives.

Principal Characteristics

Weight on drivers.....	560,000 lbs.
Total weight, approximately.....	380 tons
Tractive effort, continuous at 14 M. P. H.....	90,000 lbs.
Tractive effort, one hour at 14 M. P. H.....	108,000 lbs.
Tractive effort, starting.....	168,000 lbs.
Horse power, continuous at 14 M. P. H.....	3,330 h. p.
Horse power, one hour at 14 M. P. H.....	4,000 h. p.
Speeds—14 and 28 M. P. H.	

The order for the electrical equipment has been placed with the Westinghouse Electric & Manufacturing Company and for the mechanical parts with the American Locomotive Company.

Illinois Central Adopts Electrification System

THE COMMISSION appointed by C. H. Markham, president of the Illinois Central, in December, 1920, to consider and report upon the electrification of the Chicago terminals of the Illinois Central in accordance with the requirements contained in the Lake Front ordinance of the city of Chicago of July 21, 1919, has recommended the adoption of the 1,500-volt direct current system with an overhead contact system of current collection. The Lake Front ordinance, to which the city of Chicago, the Illinois Central and the South Park Commission were parties, settled the common boundary lines so long under discussion, provided for additional subways and viaducts across the railroad north of Fiftieth street, and bound the railroad company to extensive improvements, including a new station at East Roosevelt Road and the electrification of certain services.

The electrification requirements are as follows: (a) The entire suburban passenger service to be operated electrically on or before 1927; (b) the entire freight service north of East Roosevelt Road on or before 1930; (c) the entire freight service within the city limits on or before 1935; the through passenger service within the city limits may with certain provisions be electrified by 1940.

Since the electrification of steam roads has been undertaken to any great extent, that is, within the last 15 years, there has been a great deal of honest difference of opinion among the engineers and manufacturers both in this country and abroad as to the best system to be used for each particular installation. The Illinois Central problem, involving as it does a heavy suburban passenger service, freight transfers between yards, switching in congested yards and eventually through passenger movements, all within terminal limits only, is quite different from any electrification so far undertaken either in this country or abroad.

The suburban passenger service will cover the main line from Chicago to Matteson, 28 route-miles; the South Chicago branch, 4.5 route-miles, and the Blue Island branch, 4.4 route-miles. The track miles involved are 125. In a short time after electrification is completed it is estimated that 240 cars, electrically equipped, will be required. These cars as equipped will cost in the neighborhood of \$35,000 each. The number of trains per day will be about 350, making about 5,000 train-miles daily. The freight service north of East Roosevelt road, next on the program, will cover

more than 40 miles of track, and as this is mainly yard trackage, involves difficult problems to properly electrify it.

The commission considered three possible schemes which were early eliminated from discussion. These were the three-phase alternating current system which requires a double overhead contact and which was eliminated on account of complications in construction without any advantages over the single-phase alternating current system; the storage battery locomotive, which had to be eliminated on account of prohibitive operating charges; the Diesel engine locomotive or some other form of self-contained unit to meet the ordinance requirements as to noxious gases and noises. Some form of the latter type of unit may be developed for freight and through passenger movements, but the development is in such a stage that it could not be depended upon for the Illinois Central.

This investigation left four systems for consideration: (1) 750-volt direct current with third rail; (2) 1,500-volt direct current with overhead contact; (3) 3,000-volt direct current with overhead contact; and (4) 11,000-volt alternating current with overhead contact.

First cost estimates and maintenance and operation estimates covering these four systems were made.

Although the 750-volt system did not differ materially in first cost and annual cost from some of the other systems considered, it was eliminated because of the large mileage of freight yard tracks involved where the third rail was considered undesirable, and also on account of the track location where Chicago climate conditions would seriously hamper operation with the third rail.

Of the three systems using an overhead contact, the 1,500-volt system seemed best to the commission for this particular problem, the electrification of the Chicago terminal, no main line divisions being involved.

Before actual electrification construction work can be started a large amount of preliminary track work must be done. At the present time work totaling about \$1,000,000 is under contract and in progress. This consists of track depression work between Twenty-fifth and Forty-fourth streets which involves the moving of over 600,000 cu. yd. of earth; elevation work between Forty-fourth and Fifty-first streets; and the construction of sewers at Rhodes avenue and Woodland Park, a dam at Twenty-third street to allow the filling of the property north of the dam, and a new breakwater between Twenty-ninth and Thirty-first streets. This will be followed by the rearrangement of tracks as the suburban tracks will be consolidated on the west part of the right-of-way; the erection of the new through passenger terminal at East Roosevelt Road; a new suburban passenger terminal at Randolph street; changes and additions to present suburban stations and platforms with entrance and exit subways where needed; and the elimination of grade crossings with other railroads.

In the meantime the design of the new electrification work covering a power-house, with a proposed location on the Calumet river near Riverdale, the sub-stations to be located at various points on the terminal, and the extensive overhead construction work for contact and transmission wires will be prosecuted. At the same time the selection of the electrical equipment for the multiple unit cars will be made. These cars will be similar in design to the 20 new all-steel suburban cars purchased in 1921 and now in use in steam service, which cars were built with the plans for the electrification in mind.

The changes in tracks and electrification of tracks will require several new interlocking plants and a complete new signal system, as the present one is not adapted to tracks where electric propulsion is used. Furthermore, extensive improvements must be made in the telephone and telegraph system involving several miles of underground conduit construction, to suit the new physical and operating conditions.

Changing a Road From a Liability to an Asset

Receiver of Louisiana & North West Has Converted Property
from Bankruptcy to a Dividend Basis

THE LOUISIANA & NORTH WEST, a railroad extending from McNeil, Ark., to Chestnut, La., a distance of approximately 100 miles, has been converted from a financial failure to a solvent condition within a period of two years. An attempted sale of the property at public auction in 1919 did not bring out a single bid at even the set minimum purchase price of \$500,000, while its value is now estimated at \$5,000,000. This change has been effected under the direction of E. R. Bernstein, formerly mayor of Shreveport, La., and vice-president of the Commercial National Bank of that city, who was appointed receiver of the road in October, 1920, after it had been out of operation for four days due to its inability to pay its employees.

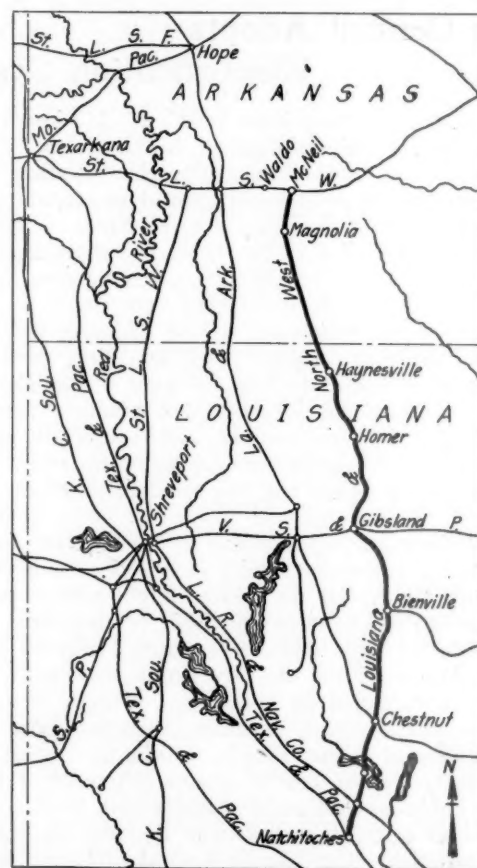
The troubles of this road had reached a climax in 1919, when suit was brought by the Baldwin Locomotive Works to foreclose on a mortgage. This precipitated litigation in the course of which application was made to junk the entire line. This action was strongly opposed by the railroad commission of Louisiana, which eventually succeeded in its efforts to prevent this step being taken. In May of this year the receivership was terminated and the road was acquired by a syndicate headed by former Governor N. C. Haskell of Oklahoma. Since his acquisition of the road there has been some talk of extending the line from Magnolia, Ark., through Waldo to a connection with the Missouri Pacific at Hope, although no announcement to this effect has been made as yet. Some consideration is also being given to the extension of the line from Haynesville, La., to Eldorado, where Mr. Haskell is interested in timber as well as oil lands, but this is likewise still in abeyance. While it is said that the present liberal policy of additions and betterments to the line will be continued, the L. & N. W. is now in good operating condition and earning a substantial profit. It has not been hindered by the recent general strikes and the relations with its employees are harmonious.

History of the Road

In 1885, Maj. J. D. Beardsley petitioned the state of Louisiana for a charter to construct a railroad from Gibbssland, La., a station on the Vicksburg, Shreveport & Pacific, to Homer, to give rail facilities to the latter town; also to provide an outlet for lumber originating in the territory which this line would traverse. Work was begun in August, 1887, and track laying was completed in the latter part of that year. The road was opened for traffic early in 1888 under the name of the Louisiana North & South railway. The line was projected from Alexandria, La., to a connection with the St. Louis, Iron Mountain & Southern in Arkansas, a total distance of 225 miles, but the year 1890 found the line completed only between Homer and Bienville, 35 miles. At about the same time it was found that the charter of the old company was defective, and the road was reorganized under a new name, the Louisiana & North West, which was leased to J. D. Beardsley, its constructor, for a period of 50 years. In the course of a few years thereafter the road was extended north from Homer, to Magnolia, Ark., through the towns of Haynesville, La., and Emerson, Ark., and arrangements were made with the St. Louis Southwestern to lease its Magnolia branch between Magnolia and McNeil, a distance of 6.4 miles. This part of the line was opened for traffic in 1898. Within a few years another extension was completed which gave the road a through line from McNeil, Ark., to Natchitoches, La., a distance of about 121 miles, this last extension traversing a sparsely

settled country and reaching the towns of Chestnut and Grand Ecore.

In August, 1913, upon the application of the Baldwin Locomotive Works and other creditors, the United States District Court at New Orleans, La., placed the road in receivership under G. W. Hunter of St. Louis, Mo., who had been president of the corporation for a few years preceding. The condition of the property continued to decline and in July, 1919, the road was advertised for sale with an upset price of \$500,000, but there were no bidders. About this time the Baldwin Locomotive Works again brought suit against the L. & N. W. to foreclose on a mortgage. The carrier found itself in a serious predicament and petitioned the United States court at Shreveport for permission to



Map Showing the Louisiana & North West

abandon that part of the line between Gibbssland and Natchitoches, a distance of 59 miles. The matter was referred by the court to the Louisiana Railroad Commission, but before any action was taken, oil was discovered near Homer and the resulting increased traffic north of Gibbssland warranted the withdrawal of the petition for abandonment.

Mr. Bernstein Appointed Receiver

On October 1, 1920, E. R. Bernstein was appointed receiver to succeed G. W. Hunter, who had resigned. The road had ceased to operate for the four days prior to the new receivership on account of its inability to pay employees and to meet its current obligations. The roadbed and equip-

ment were in a serious condition and wrecks occurred at frequent intervals. The equipment at that time included nine locomotives, several of which had been purchased second-hand in 1898, and through lack of proper care, were unfit for service. The freight and passenger cars were in a similar condition. It is said that the service of the carrier was so poor that when oil companies were preparing to drill large oil wells in the vicinity of Homer they shipped their equipment from Shreveport, La., to Minden on the Louisiana & Arkansas, and then transported it by motor truck to Homer. When the highways became impassable between Minden and Homer, fleets of caterpillar tractors were employed, and later when the oil was found, two companies constructed pipe lines, tank farms and loading racks to connect with railroads whose tracks were located 20 to 30 miles distant.

The first official action taken by the new receiver was to borrow \$8,000 from the Homer National Bank with which he paid the employees and purchased fuel. On the day following, the employees returned to work and operation was resumed on the entire line. The new receiver also set about to reestablish the road's credit and to obtain the confidence of the public and shippers in the territory which the L. & N. W. served. To carry out his plan of rehabilitation, he directed his activities in two separate fields of endeavor.

First, he saw the necessity of practically reconstructing the property. Therefore, during the few months following his appointment, 100,000 ties, principally of white oak, were inserted and much rail was relaid. The entire right-of-way was cleared and ditched and the bridges and trestles were reconstructed. In addition to improving the roadway, the road's equipment was given attention. Seven new locomotives were purchased, one of the old engines acquired in 1898 was sold for \$5,000, and the remaining eight locomotives were thoroughly overhauled. Six additional passenger coaches were bought and other coaches placed in good condition. The carrier's shops at Homer were reconstructed, additions built, and new machinery installed. The freight equipment was repaired in these shops and, in addition, some new equipment was purchased. Water tanks were erected, freight warehouses constructed and passing tracks laid.

The receiver's second method of procedure in the reconditioning of this road was to build a list of satisfied patrons. He appealed to his employees for the necessary co-operation and to date he has not had to contend with a single strike on that line. Prior to his administration there was no regular passenger service with the exception of a shuttle train which ran between Magnolia and McNeil, a distance of 6.4 miles. There were only two mixed trains, one running south from Gibbsland, and the other north, and two local freight trains. In addition to the above, six exclusive passenger trains are now operated as well as two regular freight trains and an average of eight extra freight trains daily. While the L. & N. W. had formerly failed to provide adequate facilities to serve the oil developments near Homer, when oil was discovered recently in the vicinity of Haynesville, industrial spurs were constructed, pipe yards, tank farms, loading racks, etc., were installed. Since October, 1920, train service has been uninterrupted and notwithstanding a large increase in business due to the oil traffic, at no time has the railroad resorted to a freight embargo.

That part of the line between Chestnut and Natchitoches, a distance of about 22 miles, having been unprofitable from the beginning, the receiver secured permission from the Interstate Commerce Commission to abandon it. From almost the start of his service, he also gained the co-operation of the railroad commissions of Louisiana and Arkansas in the settlement of taxation matters and other claims against the company. Having secured the support of federal and state commissions, and regained the confidence of the public,

the problem was then to earn enough net revenue to make it worth keeping the L. & N. W. in operation.

From Deficits to Profits

During most of this road's life deficits have accumulated annually. The road had never paid dividends in its 35 years of existence. In 1907 there was a deficit of \$39,000; in 1909, \$85,752; in 1911, \$109,250; in 1915, \$168,223; in 1918, \$114,717, and for the year ending December 31, 1919, \$35,654. In contrast with this record, the only money borrowed under the 1920-22 receivership was the \$8,000 loaned on the first day, which amount was repaid within a few months. The sum expended for maintenance of way during the receiver's tenure has exceeded \$700,000, which was several times any sum that had ever been applied to maintenance of way during any equal previous period.

The gross revenues for the month of March, 1922, were \$215,022.12, whereas for September, 1920, one month prior to the appointment of the receiver in question, they were only \$61,404.33. The total operating expenses for March, 1922, were \$105,177.86, while for September, 1920, they were \$84,276.50. Thus, while the gross revenues for the month of March, 1922, amounted to \$153,617.79 more than for the month of September, 1920, the increase in operating expenses was only \$20,896.30. The number of passengers carried increased from 12,071 in September, 1920, to 35,521 in March, 1922, while the freight traffic increased from 18,916 tons in the earlier month to 81,828 tons in March of this year.

The operating revenues per mile in March of this year amounted to \$2,148 as compared with \$505 in September, 1920, while the operating expenses per mile increased from \$525 in September, 1920, to \$861 in March, 1922. The net operating revenues in March, 1922, amounted to \$1,287 per mile, whereas the loss in operating revenues in September, 1920, was \$17.80 per mile. At the time of Mr. Bernstein's appointment the cash on hand amounted to \$5,841 while an audit completed on May 15, 1922, showed a cash balance of \$311,767. While a large part of this increased revenue is, of course, due to the development of the Haynesville oil field much is the result of the improved relations with the shipping and traveling public. That the public is well satisfied with the results of the recent receivership is evidenced by resolutions adopted by the Louisiana Public Service Commission and the Arkansas Railroad Commission, expressing their approval of the improvement of both the physical and the financial condition of the property.



A London & North Western Locomotive Derailed at King's Langley, Hertfordshire

General News Department

The New England Railroad Club announces that its October meeting is postponed owing to the conditions in the transportation field, and that the next meeting will be held on November 14.

The Car Foremen's Association of Chicago will hold a smoker meeting in the Great Northern hotel in that city on October 11, at which time officers will be elected and other business transacted.

A representative from every railroad in the country is the expectation of the officers of the Railway Fire Protection Association in connection with their plans for their annual meeting which is to be held at the New Willard Hotel, Washington, D. C., beginning on Tuesday, October 17. Programs are to be sent to members this week.

The Chicago, Rock Island & Pacific has issued for October a special seventieth anniversary number of its monthly "Rock Island Magazine." This number contains 225 pages, of which 100 are devoted to reading matter. The material consists largely of reminiscences and historical data surrounding the life of that railroad since the date of its founding.

The American Association of Passenger Traffic Officers will hold its annual meeting in Louisville, Ky., on October 10. The meeting of the association will be devoted largely to receiving the reports of the committee on ticket paper, the joint committee of the association and the Railway Accounting Officers' Association, the committees on standing forms of tickets, digest of fares and divisions, and adjustments and disputes relative to passenger fares and kindred subjects.

Donald R. Richberg, of Chicago, counsel for the striking unions, received assurance of readiness to co-operate with counsel for the railway shop craft organizations in any endeavor to expedite further judicial proceedings in connection with the government's strike injunction when he conferred with officers of the Department of Justice on October 2. Attorney General Daugherty said the government would not oppose or seek to delay an effort to bring the Chicago injunction or any of its collateral issues before a higher tribunal.

The riding characteristics of one of the Baldwin-Westinghouse electric locomotives used on the Chicago, Milwaukee & St. Paul have been improved by dividing the cab in two parts, according to a report called the "Log of the Manhattan" issued by the Baldwin Locomotive Company which describes a trip made through the west by President Vauclain and party. The report states: "Engines 10306 and 10307 took the curves easily and rode well. It is only in comparison with engine 10301 that they suffer, because engine 10301 seems to leave nothing to be desired." The last mentioned locomotive has a divided cab, while the other two have not.

New Members on Executive Committee of Railroad Division, A. S. M. E.

The balloting for members of the Executive Committee of the Railroad Division of the American Society of Mechanical Engineers recently held resulted in the election of the following members: re-elected for one-year term, W. H. Winterrowd, chief mechanical engineer, Canadian Pacific; James Partington, estimating engineer, American Locomotive Company; new members elected for a two-year term, William Elmer, division superintendent Pennsylvania System, and B. P. Flory, superintendent of motive power, New York, Ontario & Western. E. B. Katté, the present chairman of the Railroad Division, serves another year on the Executive Committee, according to the rules of the society.

Maintenance of Way Brotherhood Meets in Detroit

The United Brotherhood of Maintenance of Way Employees met in Detroit, Mich., on October 2, in its triennial convention. Approximately 1,200 delegates, representing 300,000 brotherhood members in all parts of the United States and Canada, are in attendance. One of the important questions to come before the convention relates to the removal of the union's headquarters to a more central location.

Freight Claims Continue to Decrease

According to the recently issued classified summary of freight claim expenditures for the first six months of 1922, as prepared by the Freight Claim Division of the American Railway Association, a decrease of 50.7 per cent has been shown as compared with a like statement for the same period in 1921. The total sum expended in the payment of freight claims for the first six months of this year was \$27,380,061.

A. R. A. Washington Committee

The Board of Directors of the American Railway Association has appointed a conference committee of eight of its members for consultation and conference, as a necessity may arise, in Washington, consisting of the following: Daniel Willard, chairman, (B. & O.); W. W. Atterbury, (Penn.); B. F. Bush, (M. P.); H. E. Byram, (C. M. & St. P.); C. R. Gray, (U. P.); Hale Holden, (C. B. & Q.); C. H. Markham, (I. C.); A. H. Smith, (N. Y. C.).

A Train Control Program

The Western Society of Engineers, Chicago, will present a symposium on Automatic Train Control on Monday evening, October 23. Among the speakers will be C. F. Giles, superintendent of machinery of the Louisville & Nashville, Louisville, Ky., who will discuss the subject from the mechanical standpoint and Thomas S. Stevens, signal engineer of the Atchison, Topeka & Santa Fe System, Topeka, Kan., who will speak from the standpoint of the signal engineer. Other speakers will trace the history of train control and will discuss it from the standpoint of the operating department.

Missouri Pacific to Terminate Van Noy Contracts

The Missouri Pacific will not renew its contract with the Van Noy Interstate Company for the operation of its restaurants and hotels following its expiration on February 26, 1923. President Bush of the Missouri Pacific states that no plans for the future have been decided upon. It is said that, although relations with the Van-Noy organization have been cordial, the carrier is making the change to insure a more uniform service for its patrons. The Van-Noy Company has had a contract with the Missouri Pacific for 15 years.

Labor Board Considers Wages of Maintenance of Way Employees in Executive Sessions

On October 2 the Railroad Labor Board, in executive session, began the consideration of the demands of the United Brotherhood of Maintenance of Way Employees and Railroad Shop Laborers for increases in the rates of pay of all classes of maintenance of way employees and for a minimum basic wage of 48 cents an hour. Present indications are that this decision will be handed down about October 15 and that the living wage principle so strenuously advocated by the representatives of the maintenance of way employees will not be recognized at this time by the Board, but that the workers involved will be given an increase.

Thornton to Head Canadian National

Word came as we were going to press that Sir Henry W. Thornton, at present general manager of the Great Eastern of England and formerly general manager of the Long Island, had been appointed head of the Canadian National Railways System, with which the Grand Trunk is now consolidated, at a salary of \$50,000 a year. Sir Henry is at present in Canada but is leaving at once for England and hopes to return in 30 days to take up his duties.

The following directors will be associated with him: J. H. Sinclair, New Glasgow, N. S.; Richard P. Gough, Toronto; James Stewart, Winnipeg; Ernest R. Decary, Montreal; Frederick G. Dawson, Prince Rupert; Tom Moore, President Canadian Trades and Labor Congress, Ottawa; G. A. Bell, Deputy Minister of Railways; G. G. Ruel, general counsel, Toronto.

Three of these directors are business men; one is a representative of the wheat interests of the west; one represents labor; one is a member of Parliament and one is the present deputy minister of railways. The inclusion of a representative of labor on the board of directors is of special interest and significance.

Net Operating Income in August

Preliminary compilations show that 139 out of the 197 Class I railroads had a net operating income in August of \$39,104,000, compared with \$70,028,000 for the same roads for August, 1921. The 139 roads represent 176,953 miles. Complete reports for all Class I roads are expected to be available in about a week.

Operating revenues for the 139 roads totaled \$382,711,000, a decrease of 6.22 per cent under those for the same roads in August last year, while operating expenses for those roads totaled \$316,356,000, an increase of 2.2 per cent over one year ago.

The Burlington Pension Badge

In the shape of a shield, three-quarters of an inch in height, bearing the words "Burlington Service" in the familiar oblong shape of the company's trade mark in the upper part, and a number indicating the years of service just beneath it, the Chicago, Burlington & Quincy has provided an unusual and unique badge of honor for its retired employees who are on the pension roll. The first shield goes to J. R. Wood, a passenger conductor who has just completed 65 years of continuous service, and who was the oldest employee in length of service. Mr.



Wood began in 1857 as a waterboy. W. L. Hippert, another passenger conductor, has completed 56 years of continuous service for the road, having begun as a brakeman in 1866.

Only Four Wooden Mail Cars

The wooden railroad car is almost gone, says a statement issued by the Post Office Department. "It is about ready to fade into the past, joining the passenger pigeons, the wild west, the horse drawn carriage and ginger-bread houses." According to the figures of the Post Office Department there are only four wood mail cars now in use out of about 5,000 cars formerly employed to transport United States mail. In 1913 a law was passed by Congress, later reenforced by a law passed in 1916 requiring that no more mail cars be admitted for postal service unless they were all steel or steel under-frame. Those wooden cars which were in use were allowed to remain in service. With the gradual replacement of wooden cars with steel, injuries and deaths of post office employees are said to have greatly decreased. During the last year only two clerks were killed in accidents and 26 seriously hurt. Almost 20,000 railway postal clerks now are employed in the railway mail service.

Later, in order to correct any false impression which might be gained from the statement to the effect that there were only "four wood mail cars now in use," the department issued

a statement giving the following statistics on the kinds of cars used in the service: Of the 1,087 Railway Post Office cars 862 are all steel, 154 are steel underframe, 67 are wood steel reinforced, and four are all wood construction. Of the 4,074 apartment cars in use 1,104 are all steel, 641 are steel underframe, 1,947 are wood, steel reinforced, and 382 are all wood construction.

Cab Signals on the Orleans Railway

The Orleans Railway of France, operating 2,969 locomotives, now has 547 of these equipped with apparatus for giving an audible signal in the cab. This system is of the ramp type and "crocodiles" (ramps) have been installed at 987 distant signals. By the end of this year the total number of locomotives equipped will be increased to 802. The Orleans is the railroad which for years has had torpedo machines in service at home signals—apparently throughout the whole of its more important lines—and concerning which an officer of the company has said that not for 50 years have trains been in serious collision because of an engineman overrunning a fixed stop signal.

California Blames East for Lack of Much Needed Cars

With the shippers receiving less than a third of refrigerator cars that they deem necessary to save the California grape crop, the Railroad Commission of that state last week again wired the Interstate Commerce Commission urging action to facilitate the westbound movement of empty cars, as follows:

"Refrigerator car situation in California not improving. Demands for 900 cars daily, with average of 250 to 275 received. Grape crop harvest now at peak and unless equipment furnished, losses will be tremendous. Our information and investigation indicate cars delayed in East account embargo and local loading. Can you advise situation of westbound empty refrigerator cars?"

Priority orders in favor of coal movement are declared to be largely responsible for this situation. Diversion of cars by brokers and delay in loading are also contributing factors. The state commission has strongly urged upon the federal commission an order against circuitous diversion and that demurrage rates be increased.

Accident Report for Second Quarter, 1922

The Interstate Commerce Commission has issued a summary of railroad accident statistics for the months of April, May and June of this year, from which we take the following figures, those in parentheses being, in each case, the totals for the same quarter in 1921.

In train accidents 7 (21) passengers, 63 (42) employees and 24 (25) other persons were killed, and 552 (569) passengers, 286 (285) employees and 83 (88) other persons were injured. Adding to these the train service accidents we have totals of 1,279 (1,180) persons killed and 9,015 (8,569) injured. These last include 402 (336) persons killed at highway crossings and 1,201 (1,015) injured. These grade crossing statistics, including also some casualties reported under the head of derailments of trains, show an increase over the same months of 1921 of 20.8 per cent in fatalities, and of 24.2 per cent in injuries not fatal.

I. C. Calls for Co-operation in Movement of Coal

The Illinois Central, through a recent advertisement published in a large number of daily newspapers, urges public co-operation in the speedy movement of coal. If the mine operators, coal dealers and coal consumers work together the pressure on the railroads will be lightened. The advertisement reads, in part:

"The Illinois Central is facing the problem of providing coal cars for fall and winter bituminous coal supplies. During this strike the side tracks of the railroads were crowded with many thousands of idle coal cars. Every informed person will appreciate that no railway system could keep itself adequately equipped to meet such a situation as the present. By the prompt loading and unloading of cars and by direct billing of cars to avoid delays occasioned by reconsignment operators, dealers and consumers can aid materially in accelerating the coal movement. We believe that,

if we receive 100 per cent co-operation from operators, dealers and consumers, no one dependent upon the Illinois Central for transportation will suffer from cold this winter. The Illinois Central System owns 30,667 open top cars suitable for coal and 5,000 new coal cars are being delivered."

Labor Board Holds Hearings

on Train Dispatchers' Rules

On September 28 and 29 the Railroad Labor Board held hearings in disputes regarding certain rules and working conditions at the instance of the American Train Dispatchers' Association, the two most important questions in dispute on practically all of the railroad involved being, (1) should chief dispatchers, night chief dispatchers and assistant chief dispatchers be included in the agreement with that organization and (2), should dispatchers be allowed vacations and sick leaves with pay. In addition, there were some miscellaneous disputes involving the questions of relief days, calls, overtime, etc., but these were subsequently remanded to one of the Labor Boards' bureaus for a later hearing. After testimony bearing on the two important disputes had been given to the Board by J. G. Luhrsen, president of the train dispatchers' organization, and J. W. Higgins, Dr. C. P. Neill and J. G. Walber, representing respectively the western, southeastern and eastern carriers, the Labor Board took the case under advisement.

Master's Report Favors I. & G. N. in Big Suit

The International & Great Northern will be awarded \$2,000,000 in a judgment against the Pierce Oil Corporation, New York, if a master's report to Judge Hutcheson is upheld. The road originally sued for \$2,555,625 for failure to fulfill contracts for delivery of 750,000 barrels of oil at 83 cents a barrel at Fort Worth, Tex., and 750,000 barrels at 70 cents at Texas City Junction. The road asserted that it had been forced to purchase oil in the open market at \$3.50 a barrel, and it sued for the difference between the two prices. The receiver for the railway sustained damages aggregating \$771,350 on Mexican oil and \$1,026,462 on domestic oil, a total of \$1,797,812; and interest of more than \$200,000 was added. A counter judgment for \$28,219, with interest at 6 per cent from April 1, 1920, was recommended by the master in favor of the Pierce Oil Corporation for oil furnished during March of that year which would reduce the main judgment to that extent. The judgment will be reviewed by Federal Judge Hutcheson, Jr.

Prevents Orient's Increased

Divisions Becoming Effective

A restraining order preventing the carrying out of a recent decision of the Interstate Commerce Commission granting the Kansas City, Mexico & Orient an increase in the division of joint through freight rates, was issued on October 2, as a result of a special hearing in the United States District court, at Denver, Colo. Action brought by 13 carriers whose lines connect with the Orient, on the grounds that the order was confiscatory of their revenues, arbitrary and without evidence to support it, led to the restraining order. The plaintiffs contended that the commission misconceived its powers under the interstate commerce law and that it sought to take arbitrarily the revenues of strong lines and use them for the aid of a carrier unable to earn operating expenses, instead of prescribing a fair and equitable division of the revenue from joint rates. This is said to be the first case under the Transportation Act of 1920 in which the order of the Interstate Commerce Commission making divisions in rates has been enjoined. In New England recently a similar order of the commission was upheld.

Cab Signals on the Northern of France

The Northern Railway of France, as is well known, has used an audible cab signal for 40 years or more, the simple contact apparatus known as the "crocodile." From an inquiry which has been made in connection with the action of the French Government in calling upon all the railroads of the Republic to adopt some kind of cab signal it appears that the

Northern now has in service 2,906 locomotives of which all but 43 have the cab signals. These 43 are at present in the shops. Of the engines fitted, 752 are in the passenger service, 1,726 in freight service and 385 are switching locomotives.

The other railroads of France are now making this improvement, and a statement of the conditions on the Paris, Lyons & Mediterranean was given in the *Railway Age* of September 30, page 606. These other roads are not in all cases using the same design as that of the Northern but it appears that there is a general understanding that the principle of operation and the location of apparatus on the roadways are to be sufficiently in conformity to the practice of the Northern to make it practicable to interchange locomotives, if necessary, throughout France.

Mr. Loree on Labor Unions

State supervision of all voting which may result in a strike or lockout was advocated by L. F. Loree, president of the Delaware & Hudson in an address on "Labor Unions" before the clearing house section of the American Bankers Association convention in New York this week. He proposed that laws be enacted to this effect. Such control, to insure a secret ballot free from intimidation or misrepresentation, and its honest count was declared necessary to rescue the American worker from what he termed the tyranny of labor professionally organized. Mr. Loree urged his hearers to devote time and thought to ways and means of helping the laborer "in his safety and comfort * * * intellectually and spiritually." He would have laws enacted—

1. To provide that voluntary associations of seven or more members may sue or be sued.
2. To make the records and accounts of such associations subject to public authority, and to make political use of union funds a criminal offense.
3. To give State authorities better facilities for labor dispute investigation through the power to subpoena witnesses; also to make available to the public full reports of such investigations, then to compel fourteen days' notice of intention to strike or lockout.

Railway Real Estate Association to Meet

The fourth annual meeting of the Railway Real Estate Association will be held at La Salle Hotel, Chicago, on Tuesday, Wednesday and Thursday, October 10, 11 and 12. By the resignation of President F. C. Irvine, James T. Maher (Great Northern) has become president of the association, and Chicago has been fixed upon as the place of meeting instead of Pittsburgh. Mr. Maher will deliver the presidential address on Wednesday morning.

The principal papers on the program are the following: Railroad insurance, by K. T. Krausch (C. B. & Q.); How to buy right of way, by O. F. Scudder (C. B. & Q.); Purposes for which railroad land should be leased, by J. L. Watson (Nor. Pac.); Crossings, and use of railroad land by telephone companies, etc., by W. L. Mattoon (Hocking Valley); The relation of federal valuation to taxation, by A. J. Rooney (C. & O.); Methods of assessing railroad property, by Hon. N. P. Haugen, formerly chairman of the Wisconsin Tax Commission; Can government valuation of railroad lands be made an influencing factor in condemnation proceedings? by W. R. Tarbet (Ill. Cent.); Can the multiple studies made in connection with federal valuation be used as a basis of determining cost of acquiring lands? by W. B. Thomson (W. & L. E.)

Our Duty to Home and Industry

The foregoing is the title of a circular which the Buffalo, Rochester & Pittsburgh has addressed to its employees, calling attention to the crisis in coal transportation. It says, in part:

The Buffalo, Rochester & Pittsburgh is favorably spoken of in every community it serves, and will stay in favor just so long as it continues to serve. We as railroad men have never had an opportunity to show our ability for real railroading such as confronts us today. The jobs of those in many industries depend on us to move coal. The lives of children, babies and the infirm depending on fuel for warmth demand that we do our utmost to move coal. That the public may be adequately served there must be the utmost harmony, co-operation and endeavor all along the

line. The *Railway Age* says: "Coal cars should be unloaded promptly regardless of the free time allowance. For a consignee under present conditions to delay the unloading of cars merely because he has the legal right to do so, would be a crime against the public welfare * * *". This company now calls on every employee to give patrons transportation facilities never before equalled. We have the men who can do it, and with enthusiasm and team work we are out to set a record for every other railroad to try and equal. We must make a record for brilliant railroading. We must move the coal and with the co-operation of mines and consignees we are going to do it.

Effect of Strike on the Mails

Statistics issued by the Post Office Department show that during the period of the railroad strike upheaval 1,269 mail trains were annulled by the railroads, representing a mileage of 112,540. Transferring mail pouches to other trains, re-routing mail and apartment cars, substituting automobile trucks for railroads and other emergency measures were adopted so that there was no serious congestion of the mails at any point for any length of time. Except for slight interruptions at isolated points and a slowing up in the operation of the postal system in certain sections regular delivery of the mails continued as if no serious strike was in existence, according to a statement issued by the department. In only extreme cases was it found necessary to substitute motor trucks to carry the mails, and in these emergencies automobiles were immediately placed in commission, making regular runs both daily and tri-weekly to points cut off from railroad transportation.

Postmaster General Work early completed plans for the mobilization of the Army and Navy air service to carry the mails, and also inaugurated a complete survey of the motor vehicles, both publicly and privately owned, that might be available to secure the safe and complete delivery of mails in case of thorough break-down of railroad service. Scores of messages from every part of the country were received offering the use of airplanes, motor trucks and other vehicles.

The Careful Crossing Campaign in Chicago

At a recent meeting of the Steam Transportation Committee of the Chicago Association of Commerce, a report was made of the work of the Safety Council in connection with the "Careful Crossing Campaign." It was stated that approximately 6,000 large posters, 1,500 small posters and 100,100 "stickers" have been used, this material being distributed to, and by the aid of motor clubs, the Cartage Exchange of Chicago, public and parochial schools, Boy Scouts of America, Association of Commerce, members of the National Safety Council and the Motor Truck Owners' Association and otherwise. Many industries in Chicago were supplied with this material, including the International Harvester Company, which distributed it to its branch agencies and drivers throughout the United States. Also a radio address was made preceding the campaign by E. M. Switzer, superintendent of safety, Chicago, Burlington & Quincy, and during the campaign by J. E. Gorman, president of the Chicago, Rock Island & Pacific, these addresses reaching about 50,000 people (in each instance) in a territory extending 800 miles from Chicago, besides being accorded wide press publicity.

Extensive publicity was accorded the campaign by "Chicago Commerce," the official publication of the Chicago Association of Commerce; in the magazines of the motor clubs and in trade journals and house organs. Approximately 200 reports of carelessness exhibited by motorists at railway crossings have been acted upon individually by the Highway Safety Committee of the council. The Chicago Motor Club and the Illinois Automobile Club carried notice of the campaign in their several electric signs about the city and three large billboard advertisements were located at prominent locations in the city. The plan was explained by A. W. Smallen before the Motor Drivers' School; by E. M. Switzer at C. A. C.'s Foremen's Instructions Course, and M. A. Dow at the Safety Supervisors' School, in addition to which co-operation was solicited on the part of the several hundred companies in Chicago directly interested in the Safety Council's operation.

A special pamphlet, prepared under the direction of the committee, was distributed to all school teachers and by them read to the children to explain the plan and urge their co-operation, thus directly instructing about 550,000 school children. (Several roads

also distributed this pamphlet or a revision of it to the schools along their lines.) Publicity was accorded the subject in the newspapers of the city and the subject was presented at sundry public meetings by members of the Speakers' Bureau of the Safety Council. The slogan "Cross Crossings Cautiously" has been made a part of the safety textbook about to be placed in use in Chicago public schools.

During June and July, 1922, there were only four fatalities in automobile-railway crossing accidents in Chicago and Cook county, as compared with five in the same period of 1921. Attention was called to an editorial on the results of the campaign published in the *Railway Age* of September 9, wherein it is shown that on 66 class I roads in June and July, 35 more persons were killed in grade crossing accidents than in the same period of 1921; that the campaign, nevertheless, is counted as a success, and that enthusiasm so developed should be maintained. The committee appeared before the Illinois Commerce Commission on September 20, and urged that body to undertake a campaign for the education of motorists, with particular regard to railway crossing accidents.

R. B. A. Asks President to Let Rate Provisions Stand

The Railway Business Association has addressed a letter to President Harding asking him to preserve intact the income provisions of the Transportation Act. These provisions, the letter says, are in a position different from the labor provisions. The letter, which is signed by Alba B. Johnson, president of the association, follows in part:

"Your attention is invited to the importance of so restricting railway legislation that for some time to come changes may be avoided in the sections which assure the roads an opportunity to earn an adequate income. As we view it, the labor provisions and the provisions embodying the rule of rate making are in two distinct positions.

"Those who urge amendments to the labor clauses state that the object of those sections was to prevent interruptions in railway service through strikes and there have been strikes. Such advocates assert their conviction that a sufficient consensus of public approval for strike remedies has crystallized to warrant serious consideration of amendments. The purpose of the clauses affecting the regulation of rates, on the other hand, was to find a level which would yield the average road sufficient income for it to finance adequate additions and betterments. Nobody can yet say advisedly that these sections have failed. Proof requires trial over a period longer and more fully representative of average normal conditions than has thus far been possible. No observer has asserted that there is a consensus of public opinion as to the sufficiency of these clauses or as to desirable modifications.

"We respectfully suggest that before Congress reconvenes you emphasize to that body and to the country the vital stake of all concerned in the stability of these vast railway purchases and how essential for the continuance of prosperity it is to postpone amendments of the clauses affecting railway revenue and thus preserve confidence in adequacy of railway income as a permanent aim of government regulation."

Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings:

- AIR BRAKE ASSOCIATION.—F. M. Nellis, 165 Broadway, New York City. Next convention, May 1-4, 1923, Denver, Colo. Exhibit by Air Brake Appliance Association.
- AIR BRAKE APPLIANCE ASSOCIATION.—J. F. Gettrust, The Ashton Valve Company, 318 W. Washington St., Chicago. Meeting with Air Brake Association.
- AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—F. A. Pontious, Supervisor of Demurrage and Storage, C. & N. W. Ry., Chicago.
- AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—L. A. Stone, C. & E. I. Ry., Chicago. Annual meeting, Oct. 17-20, San Francisco, Cal.
- AMERICAN ASSOCIATION OF ENGINEERS.—C. E. Drayer, 63 E. Adams St., Chicago.
- AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 So. Michigan Ave., Chicago.
- AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Annual meeting, October 10 and 11, Seelbach Hotel, Louisville, Ky.
- AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothschild, Room 400 Union Station, St. Louis, Mo.
- AMERICAN ELECTRIC RAILWAY ASSOCIATION.—J. W. Welsh, 8 W. 40th St., New York.

- AMERICAN RAILROAD MASTER TINNERS', COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.—C. Borchardt, 202 North Hamlin Ave., Chicago, Ill.
- AMERICAN RAILWAY ASSOCIATION.—J. E. Fairbanks, General Secretary, 75 Church St., New York, N. Y. Annual meeting, November, 1922.
- Division I.—Operating. J. C. Caviston, 30 Vesey St., New York, N. Y.
- Freight Station Section (including former activities of American Association of Freight Agents). R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill.
- Medical and Surgical Section. J. C. Caviston, 30 Vesey St., New York, N. Y.
- Protective Section (including former activities of the American Railway Chief Special Agents and Chiefs of Police Association). J. C. Caviston, 30 Vesey St., New York, N. Y.
- Safety Section. J. C. Caviston, 30 Vesey St., New York.
- Telegraph and Telephone Section (including former activities of the Association of Railway Telegraph Superintendents). W. A. Fairbanks, 30 Vesey St., New York, N. Y. Annual meeting has been indefinitely postponed.
- Division II.—Transportation (including former activities of the Association of Transportation and Car Accounting Officers). G. W. Covert, 431 South Dearborn St., Chicago, Ill.
- Division III.—Traffic. J. Gottschalk, 143 Liberty St., New York.
- Division IV.—Engineering. E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Exhibit by National Railway Appliances Association.
- Construction and Maintenance Section. E. H. Fritch.
- Electrical Section. E. H. Fritch.
- Signal Section (including former activities of the Railway Signal Association). H. S. Balliet, 30 Vesey St., New York, N. Y. Next meeting, November 21 and 22, Hotel McAlpin, New York.
- Division V.—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association). V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Exhibit by Railway Supply Manufacturers' Association.
- Equipment Painting Section (including former activities of the Master Car and Locomotive Painters' Association). V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.
- Division VI.—Purchases and Stores (including former activities of the Railway Storekeepers' Association). W. J. Farrell, 30 Vesey St., New York, N. Y.
- Division VII.—Freight Claims (including former activities of the Freight Claim Association). Lewis Pilcher, 431 South Dearborn St., Chicago, Ill.
- Car Service Division.—C. A. Buch, 718 18th St., N. W., Washington, D. C.
- AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Next convention, October 17-19, 1922, Hotel Gibson, Cincinnati, Ohio. Exhibit by Bridge and Building Supply Men's Association.
- AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—A. Leckie, Industrial Agent, Kansas City Southern Ry., Kansas City, Mo.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.—(Works in co-operation with the American Railway Association, Division IV.) E. H. Fritch, 431 South Dearborn St., Chicago. Exhibit by National Railway Appliance Association.
- AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—(See American Railway Association, Division V.)
- AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—R. D. Fletcher, 1145 East Marquette Road, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.
- AMERICAN SHORT LINE RAILWAY ASSOCIATION.—T. F. Whittelsey, Union Trust Bldg., Washington, D. C.
- AMERICAN SOCIETY FOR STEEL TREATING.—W. H. Eiseman, 1600 Prospect Ave., Cleveland, Ohio. Annual convention, Oct. 2-7, 1922, General Motors Building, Detroit, Mich.
- AMERICAN SOCIETY FOR TESTING MATERIALS.—C. L. Warwick, University of Pennsylvania, Philadelphia, Pa.
- AMERICAN SOCIETY OF CIVIL ENGINEERS.—Prof. J. H. Dunlap, University of Iowa, Iowa City, Ia. Regular meeting 1st and 3d Wednesdays in month, except July and August, 33 W. 39th St., New York. Fall meeting, October 4-9, Palace Hotel, San Francisco, Cal.
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.
- Railroad Division.—A. F. Stuebing, Manager Editor, Railway Mechanical Engineer, Woolworth Bldg., New York.
- AMERICAN TRAIN DISPATCHERS' ASSOCIATION.—C. L. Darling, 1310-1311 Mallory Bldg., Chicago, Ill. Next convention, June 18, 1923, Chicago.
- AMERICAN WOOD PRESERVERS' ASSOCIATION.—S. D. Cooper, A. T. & S. Fe R. R., Topeka, Kan. Next meeting, January 23, 1923, New Orleans, La.
- ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, Northern Pacific R. R., St. Paul, Minn.
- ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W. Ry., Room 411, C. & N. W. Sta., Chicago. Annual convention, October 30-November 3, Hotel La Salle, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.
- ASSOCIATION OF RAILWAY EXECUTIVES.—Thomas De Witt Cuyler (chairman), 61 Broadway, New York, N. Y.
- ASSOCIATION OF RAILWAY SUPPLY MEN.—A. W. Clokey, 1658 McCormick Bldg., Chicago. Meeting with International Railway General Foremen's Association.
- ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—(See American Railway Association, Division I.)
- ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—(See American Railway Association, Division II.)
- BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—D. J. Higgins, American Valve & Meter Company, 332 S. Michigan Ave., Chicago. Meeting with convention of American Railway Bridge and Building Ass'n.
- CANADIAN RAILWAY CLUB.—W. A. Booth, 53 Rushbrook St., Montreal, Que.
- CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Great Northern Hotel, Chicago.
- CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—Thomas B. Koenke, 604 Federal Reserve Bank Bldg., St. Louis, Mo. Meetings, first Tuesday in month at the American Hotel Annex, St. Louis.
- CENTRAL RAILWAY CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 2d Tuesday in January, March, May, September and November, Hotel Iroquois, Buffalo, N. Y.
- CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—W. P. Elliott, Terminal Railroad Association of St. Louis, East St. Louis, Ill. Annual convention, November 6-8, Hotel Sherman, Chicago.
- CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S SUPPLY MEN'S ASSOCIATION.—D. B. Wright, 34th St. and Artesian Ave., Chicago, Ill. Meeting with Chief Interchange Car Inspectors' and Car Foremen's Association.
- CINCINNATI RAILROAD CLUB.—W. C. Cooder, Union Central Bldg., Cincinnati, Ohio. Meetings, 2d Tuesday in February, May, September and November.
- EASTERN RAILROAD ASSOCIATION.—E. N. Bessling, 614 F St., N. W., Washington, D. C.
- FREIGHT CLAIM ASSOCIATION.—(See American Railway Associations, Division VII.)
- GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—C. H. Treichel, Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Friday in month, Room 1414, Manhattan Bldg., Chicago.
- INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Exhibit by International Railroad Master Blacksmiths' Supply Men's Association.
- INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.—George P. White, 747 Railway Exchange, Chicago. Meeting with International Railroad Master Blacksmiths' Association.
- INTERNATIONAL RAILWAY FUEL ASSOCIATION.—J. G. Crawford, 702 E. 51st St., Chicago. Exhibit by International Railway Supply Men's Association.
- INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabash Ave., Winona, Minn.
- INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.—C. W. Sullivan, Garlock Packing Co., 326 W. Madison St., Chicago. Meeting with International Railway Fuel Association.
- MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 26 Cortlandt St., New York.
- MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION.—(See A. R. A., Division V.)
- MASTER CAR BUILDERS ASSOCIATION.—(See A. R. A., Division V.)
- NATIONAL ASSOCIATION OF RAILWAY TIE PRODUCERS.—Walter C. Nixon, Western Tie & Timber Co., 905 Syndicate Trust Bldg., St. Louis, Mo.
- NATIONAL ASSOCIATION OF RAILWAY AND UTILITIES COMMISSIONERS.—James B. Walker, 49 Lafayette St., New York. Annual convention, November 14, Hotel Tuller, Detroit, Mich.
- NATIONAL FOREIGN TRADE COUNCIL.—O. K. Davis, 1 Hanover Square, New York.
- NATIONAL RAILWAY APPLIANCE ASSOCIATION.—C. W. Kelly, People's Gas Bldg., Chicago. Annual exhibition at convention of American Railway Engineering Association.
- NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Next meeting, November 14.
- NEW YORK RAILROAD CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 3d Friday in month, except June, July and August, at 29 W. 39th St., New York.
- PACIFIC RAILWAY CLUB.—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meetings, 2d Thursday in month, alternately in San Francisco and Oakland.
- RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, 1116 Woodward Building, Washington, D. C.
- RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 600 Liberty Bldg., Broad and Chestnut Sts., Philadelphia, Pa. Annual meeting and dinner, November 9, Hotel Commodore, New York.
- RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.
- RAILWAY DEVELOPMENT ASSOCIATION.—(See Am. Ry. Development Assn.)
- RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. Scribner, General Electrical Co., Chicago. Annual meeting with Association of Railway Electrical Engineers.
- RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—R. J. Himmelright, 17 East 42nd St., New York. Meeting with Traveling Engineers' Association.
- RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Annual meeting, October 17-19, Willard Hotel, Washington, D. C.
- RAILWAY REAL ESTATE ASSOCIATION.—R. H. Morrison, C. & O. Ry., Richmond, Va. Next meeting October 10-13, 1922, Pittsburgh, Pa.
- RAILWAY SIGNAL ASSOCIATION.—(See A. R. A. Division IV, Signal Section.)
- RAILWAY STOREKEEPERS' ASSOCIATION.—(See A. R. A., Division VI.)
- RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meeting with A. R. A., Division V.
- RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York.
- RAILWAY TREASURY OFFICERS' ASSOCIATION.—L. W. Cox, Commercial Trust Bldg., Philadelphia, Pa. Annual meeting, October 19 and 20, Battery Park Hotel, Asheville, N. C.
- ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—P. J. McAndrews, C. & N. W. Ry., Sterling, Ill. Annual convention, November 21-23, 1922, Hotel Statler, Cleveland, Ohio. Exhibit by Track Supply Association.
- ST. LOUIS RAILWAY CLUB.—R. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August.
- SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, Sunbeam Electric Manufacturing Company, New York City. Meeting with American Railway Association, Signal Section.
- SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3d Thursday in January, March, May, July, September and November, Piedmont Hotel, Atlanta.
- SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—J. L. Carrier, Car Serv. Agt., Tenn. Cent. Ry., 319 Seventh Ave., North Nashville, Tenn. Next meeting, October 19, St. Augustine, Fla.
- SUPPLY ASSOCIATION OF AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—H. S. White, 9 N. Jefferson St., Chicago.
- TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hilburn, N. Y. Meets with Roadmasters' and Maintenance of Way Association.
- TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 East 98th St., Cleveland, Ohio. Annual convention, October 31-November 3, Hotel Sherman, Chicago. Exhibit by Railway Equipment Manufacturers' Association.
- WESTERN RAILWAY CLUB.—Bruce V. Crandall, 14 E. Jackson Boulevard, Chicago. Regular meetings, 3d Monday each month except June, July and August.

Traffic News

The Buffalo, Rochester & Pittsburgh has opened a city ticket office in Pittsburgh, Pa., 529 Smithfield Street. The city passenger agent is H. B. Herrick.

The Northern Pacific has restored 58 passenger trains to service, the operation of which was discontinued during the first part of the summer due to the shop crafts' strike and the fuel shortage.

A committee of freight traffic officers of the trunk line railroads will begin a meeting in New York on October 23 for the purpose of hearing shippers on a plan for a uniform scale of class rates for trunk line territory which has been under consideration for some time.

Freight Commodity Statistics to June 30

The Bureau of Statistics of the Interstate Commerce Commission has compiled a statement showing by districts the freight tonnage transported by Class I steam railways for the quarter ended June 30, 1922, with comparisons between 1921 and 1922:

Class of commodities	Number of tons originated		Per cent of increase 1922 over 1921
	Quarter ended June 30, 1921	Quarter ended June 30, 1922	
Products of agriculture.....	21,373,939	19,965,391	*6.59
Animals and products.....	5,775,453	6,150,416	6.49
Products of mines.....	124,036,608	101,404,725	*18.25
Products of forests.....	19,746,413	22,779,953	15.36
Manufactures and miscellaneous.....	41,894,693	57,258,094	36.67
Merchandise—all l.c.l. traffic.....	10,628,424	11,036,921	3.84
Total.....	223,455,530	218,595,500	*2.17
Total tons carried.			
Class of commodities	Number of tons originated		Per cent of increase 1922 over 1921
	Quarter ended June 30, 1921	Quarter ended June 30, 1922	
Products of agriculture.....	44,639,283	43,583,656	*2.36
Animals and products.....	10,146,292	10,846,813	6.90
Products of mines.....	208,779,616	180,471,075	*13.56
Products of forests.....	36,858,931	45,913,216	24.56
Manufactures and miscellaneous.....	81,054,733	112,557,162	38.87
Merchandise—all l.c.l. traffic.....	16,770,520	18,057,427	7.67
Total.....	398,249,375	411,429,349	3.31

* Decrease.

Coal Production

Production of both bituminous coal and anthracite appears to have found a temporary level, bituminous at around 9,750,000 net tons, and anthracite at 1,850,000 tons a week, said the Geological Survey in its bulletin on coal production for the week ended September 30. The total of all coal raised is therefore about 11,600,000 net tons, still somewhat less than the amount required to meet current consumption and the heavy movement up the Lakes, and at the same time to rebuild consumers' stocks.

The total production of anthracite during the week was estimated at from 1,800,000 to 1,900,000 net tons as against 1,856,000 tons in the week preceding.

The output of bituminous coal for the week was estimated at from 9,600,000 to 9,900,000 tons. The returns indicated a slight increase over the week preceding. The following statement shows the number of cars loaded daily during the past three weeks:

	Sept. 11-16	Sept. 18-23	Sept. 25-30
Monday	35,919	37,986	38,804
Tuesday	30,737	29,926	33,396
Wednesday	29,478	28,403	27,404
Thursday	26,571	29,036	26,862
Friday	28,468	27,139	27,177
Saturday	25,418	25,300	26,848

Under the stimulus of active demand soft coal is now being offered for shipment up to the ability of the rail and water carriers to transport it. The present weekly rate of production is nearly a million tons above that of the year of depression, 1921, but is from one and one-half to three million tons below the other preceding three years.

Preliminary returns on daily car loadings at anthracite mines

during the week September 16-23 increased from 5,449 cars on Monday to 5,900 on Thursday but fell off on Friday and on Saturday to 5,506 cars. Loadings on Monday of last week increased to 5,952 cars, and on Tuesday were about the same. On Wednesday there was a slight decrease but on Thursday loadings reached 5,983 cars, the largest number since the end of the strike. On Friday 5,854 cars were loaded and on Saturday 6,144. Shipments for the week will be about 36,000 cars which compares favorably with weeks of normal production in recent years.

The mine reports for the week ended September 16 show a gradual but widespread increase in losses ascribed to transportation disability. In only five districts—Tug River, Logan, Virginia, Iowa, and Wyoming was there any marked improvement in car supply. In the strongly organized fields where the Cleveland agreement has been accepted or made the basis of subsidiary agreements production has reached the limit of transportation facilities. Even in the Pittsburgh and Central Pennsylvania districts transportation is now the chief factor limiting production. No agreement has yet been reached in the former non-union fields in Pennsylvania, nor in the Chesapeake & Ohio section of Kanawha and a part of the Georges Creek—Upper Potomac region. When compared with losses through transportation all other factors limiting production in the week of September 11-16 were of small importance.

The all-rail movement of coal to New England through the six principal Hudson gateways increased to 3,255 cars of bituminous and 1,507 cars of anthracite in the week ended September 23. In addition there were also forwarded through Rouses Point 76 cars of bituminous coal and 2 cars of anthracite.

Shipments of bituminous coal through Hampton Roads increased slightly during the week ended September 23. Dumpings for the week totaled 312,003 net tons as against 307,426 tons on the week before. The tonnage of cargo coal for export and for New England increased whereas tonnage for other coastwise destinations decreased.

Soft coal shipments from the mines to Lake Erie ports, under stimulus of priority orders increased 52 per cent during the week ended September 17 over the preceding week and 34 per cent in the week ended September 24 over the week before that. The Ore and Coal Exchange reports a total of 1,453,684 tons dumped during the week of September 24 as against 1,095,919 the week before. Of the total, 1,409,648 tons were cargo coal and 44,036 tons were vessel fuel. The rate of dumpings last week was 137 per cent greater than that in the corresponding week a year ago, and 60 per cent above the rate in the corresponding week of 1920. The total quantity of cargo coal forwarded during the present Lake season now stands at 8,487,318 tons, but of this 962,198 tons has gone to destinations not ordinarily taking Lake coal. The quantity sent to regular Lake markets was only 7,525,120 tons as against 17,690,177 tons in 1921 and 14,025,734 tons in 1920.

Dumpings of coal at Lake Erie ports continued at high rates during last week. The tonnage handled at the piers in the three days, September 25-27, showed a slight increase over the corresponding days of the week before. Lake coal is now going forward at the maximum rate in the history of the traffic.

More cars were loaded with coal during the week ended September 30, than during any week since that of April 1, this year, according to reports issued by the American Railway Association. The total for the week was 216,212 cars. This exceeded by 4,102 cars the preceding week which had been the high mark. Coal production for the week, on the basis of this loading, approximated 11,713,000 tons, including about 9,927,000 tons of bituminous and 1,786,000 of anthracite. Production for the previous week was approximately 11,500,000 tons for both kinds of coal.

Loading of bituminous coal totaled 180,491 cars and 35,721 cars were loaded with anthracite. Loading of anthracite on Saturday, September 30, amounted to 6,144 cars.

For the third successive week more than a million tons of coal were dumped during the past week at Lake Erie ports for shipment to upper lake points. The total dumped during the past week amounted to 24,380 cars or 1,219,000 tons. On Saturday and Sunday 7,083 cars were dumped, the largest unloading in the history of the docks, except on the preceding Saturday and Sunday one week ago, when the total was 8,052 cars. According to advices received by the Car Service Division, the strike on lake carriers up to date has not interfered to any noticeable extent with coal shipments on the lakes.

Commission and Court News

Interstate Commerce Commission

The commission has suspended until February 2, 1923, the operation of certain schedules published in supplements to F. A. Leland's tariffs, which propose to increase the rates on fresh fruits, melons and vegetables, from points in Arkansas, Louisiana, Missouri, Oklahoma and Texas to points in C. F. A. and Trunk Line territories.

Court News

Defective Running Board

The Oklahoma Supreme Court holds that where a defective running board on a car contributed to cause a brakeman to fall from the car, receiving injuries, the railroad is liable under the Supplementary Safety Appliance Act of April 14, 1910.—*New v. Saunders* (Okla.), 206 Pac. 600.

Live Stock Shipper Overloading

Cars Cannot Recover for Loss

The New Mexico Supreme Court holds that a shipper who agrees to load live stock at his own risk, and who overloads the cars, cannot recover against the carrier for losses which would not have occurred but for the overloading.—*Spence v. El Paso & Southwestern* (N. Mex.), 207 Pac. 579.

Contract Periods of Limitation Not

Affected by Transportation Act

The Circuit Court of Appeals, Second Circuit, holds that the provision in the Transportation Act that the period of Federal control shall not be computed as part of the periods of limitations applies only to limitations fixed by statute and not to limitations fixed by the bill of lading.—*New York Central v. Lazarus*, 278 Fed. 900.

Shipper by Acquiescence Held to Assume

Risk of Inadequate Unloading Facilities

Where it is shown that alleged inadequate facilities for unloading stock were known to the shipper, but he nevertheless undertook through his own special agent to unload the animals himself, the Georgia Court of Appeals holds that the risk of their being injured must be taken to be assumed by the shipper.—*Payne v. Duncan & Nelms* (Ga. App.) 111 S. E. 209.

Inconsistent Provisions in Tariff

The Texas Court of Civil Appeals holds that a general provision in a freight tariff item established by the Interstate Commerce Commission, giving the railroad right to carry cotton to any other compress if that designated is not available, must yield to an inconsistent provision in the immediately following item as to shipments on designated routes.—*King v. Chicago, R. I. & G.* (Tex.), 241 S. W. 180.

Carrier's Negligent Failure to Collect Freight

Bill Does Not Prevent Recovery from Consignor

The Georgia Court of Appeals holds that where a railroad transports goods and negligently fails to collect or even to attempt to collect freight charges from the consignee, although it could have collected if it had acted promptly, the consignee then becoming insolvent, the carrier can nevertheless recover the charges from the consignor. It is immaterial that at the time of delivery of the goods there existed an agreement between consignee and the carrier that consignee should have one week in which to pay freight bills.—*S. A. L. v. Montgomery* (Ga. App.) 112 S. E. 652.

Foreign Railway News

Bolivia Invites Tenders on Big Railway Project

The Bolivian government is calling for tenders for the construction of a railway from Cochabamba to Santa Cruz de la Sierra, according to the Wall Street Journal. The new line will be 388 miles long with a 37-mile branch line and will cost from \$40,000,000 to \$50,000,000. Gage will be one meter, maximum gradient 3 per cent and 60 lb. rail will be used. Santa Cruz is at the headwaters of the Amazon and Cochabamba is connected with the Pacific and the rest of Bolivia by rail.

Construction must begin 60 days after contract is signed and must be completed within six years. Contractors are guaranteed an 8 per cent return on the investment for 25 years, secured by duties on imports into certain sections of Bolivia. Contractors will be given a concession to operate the property for a period of 99 years.

Sealed tenders will be received by the ministry of public works, La Paz, until June 30, 1923.

China Notes

PEKING.

In these notes published in the *Railway Age* of September 30, report was made of a contract between the representatives of the General American Tank Car Company and the Peking-Suiyuan Railway for the gradual amortization of the indebtedness of the railway to the supplier for a large consignment of rolling stock and sleepers out of the earnings of the rolling stock. This contract bears some resemblance to the familiar equipment trust in America. It provides that an accountant acceptable to the supply company be appointed to keep a record of the car movements and the revenue therefrom,—the latter being the basis of the payments to be made on the indebtedness. The accountant appointed is a Chinese recently returned from Columbia University. The employees of the railway, however, have represented that the contract contemplates the appointment of a foreign accountant, thus permitting of the beginning of foreign control of the Peking-Suiyuan, which up to the present has been the pride of the Chinese people as being Chinese built and Chinese owned. An appeal has been made to the president and to parliament which began its sittings on the first of the month.

A strike was accordingly organized among the trainmen which was extended to the clerks in the head office. The strikers drove off the chief accountant, he being one of the signers of the contract. Following this the managing director took fifteen days' "sick leave" and the employees of the line declared independence of the ministry of communications. A few days later a squad of cavalry surrounded the offices of the railway and attempted to arrest the ring-leaders of the disturbance, but these had been warned and fled. The director of the railway department of the ministry of communications, however, took possession of the offices and installed an acting managing director. An effort is now being made to persuade the American firm to modify its contract.

This incident is significant in several directions. This contract is the first which any American interest has been able to obtain which would place any officer of an operating road under any sort of American influence since the China American Development Company was bought out from its position on the Canton-Hankow line. Every American attempt to build railways in China has been thwarted by some kind of opposition, either native or foreign. But this is the first time any native opposition has developed toward the payment of mere debts due to an American firm. There are many who profess to see in it the usual intrigue which has always attempted to make difficult American trade in a large way with the Chinese government. Those who believe that the education of large numbers of Chinese in America—to be made possible by the remission of the remaining installments of the Boxer indemnity—will promote favorable trade relations will need to explain why it is that these affairs always defeat

Americans, but do not thwart other nationalities. However, the probable explanation of this uprising is to be found along entirely different lines.

Ever since the present cabinet was installed, there has been a consistent drive on the part of the old Peking political gang,—principally the Chiotung clique—to eliminate the nominees of Wu Pei-fu. Tung Kang, the minister of finance, no sooner had made public his report that recent ministers of that department had "squeezed" practically as much money as they had turned over to the militarists, than he was subjected to such an attack as to make him retire, and he has now left for America. The minister of communications has been treated to a similar line of abuse, but being remarkably thick-skinned for a Chinese, was not moved by it. However, on August 17, a body of teachers from the government schools whose salaries are long in arrears, stormed the ministry of communications, surrounded the minister and forced him to sign an undertaking to pay over to them the sum of a million dollars before the end of the month. It would be as easy to deliver the moon as a million dollars in the present condition of the ministry, so the minister took a night train for the summer colony at Peitaiho. The following day the bureau chiefs of the railway department went on strike as a protest against the behavior of a contemporary department. The minister of war, at the instigation of the president, immediately brought apologies, a delegation was dispatched to persuade the minister of communications to return, and to the surprise of these who, sent the persuaders the minister returned to Peking on August 22. However, he has not resumed office at this writing, evidently waiting word from Wu Pei-fu.

This word has now arrived, so it is reported, and is to the effect that Wu will support his minister with force if necessary. This incident must be coupled with the Peking-Suiyuan affair if either is to be interpreted correctly.

The rolling stock in the hands of Chang Tso-lin has not been returned as yet. The British interests tried the bluff of recalling all of the British employees of the line stationed in Manchuria, but Chang stood pat and these men were finally sent back to their posts. But Chang will not allow them to resume duty now, and has put them on his own pay roll in different capacities. Chang now offers to return the rolling stock if the Peking-Mukden line is made neutral for its entire length, neither party to be allowed to carry more than one train load of troops per day. In case of violation, the foreign garrisons along the line would be empowered to remove rails, or otherwise put the line out of commission. The effect of such an agreement would be to make safe the frontiers of Manchuria and confirm Chang's position of independence. This, Peking is hesitating to do. In the meantime some careful feelers have been put out to ascertain if the present financial extremities of the Peking government are sufficient to influence them to accept a bit of assistance. Chang appears to be ready to furnish the cash to redeem the whole British loan on the Peking-Mukden line. This amounts to only a little over a million and a quarter sterling. A premium of twenty per cent must be paid if the loan is retired ahead of maturity. But allowing for this, at the present rate of exchange the total cost would be only a little over 15,000,000 Mexican dollars. Allow 20,000,000 to cover "commissions, etc.," and a line worth between seventy and a hundred millions would be freed entirely from British interference. A half of this line would then fall to Chang,—or between thirty-five and fifty millions of property for twenty millions of cash. This half could then be easily disposed of by consolidating it with the South Manchurian, thus putting under one management all of the railway in Manchuria, except the Chinese Eastern with which favorable traffic arrangements have been made,—as previously reported in these columns.

In spite of all these political disturbances, construction continues. Three more stations have been opened during the month on the Paotou extension of the Peking-Suiyuan line. The earthwork on the double tracking of the Peking-Mukden line is completed and the bridgework is under way. Tenders are being advertised for by the Taokow-Chinghua Railway Administration for supplies preparatory to the beginning of construction of a westward extension. A loan from the Peking Syndicate (British) has been arranged in this connection.

Equipment and Supplies

Locomotives

THE GREEN BAY & WESTERN, reported in the *Railway Age* of September 30, as inquiring for two locomotives, has ordered this equipment from the American Locomotive Company.

THE ERIE has ordered 10 Mikado type and 20 Pacific type locomotives from the Baldwin Locomotive Works. This is in addition to the 30 Mikado type ordered from the same builder as reported in the *Railway Age* of August 19.

THE ATCHISON, TOPEKA & SANTA FE, reported in the *Railway Age* of September 16 as contemplating the purchase of 100 locomotives, has ordered 26 Santa Fe type, 8 Mountain type, 15 Mikado type, and 10 Pacific type locomotives from the Baldwin Locomotive Works.

THE NEW YORK, NEW HAVEN & HARTFORD has ordered five 181-ton electric locomotives from the Westinghouse Electric & Manufacturing Company. These locomotives will practically duplicate the ones now in use for high-speed passenger service. They will be equipped for operation on either alternating or direct current, the direct current equipment being used to permit operation into the Grand Central Station, New York.

Freight Cars

THE ERIE is inquiring for 1,000 gondola cars.

THE CHESAPEAKE & OHIO is inquiring for 50 cabooses.

THE DELAWARE & HUDSON is inquiring for 1,000 gondola cars.

THE PERE MARQUETTE is inquiring for repairs to 1,000 wooden box cars.

THE LEHIGH & NEW ENGLAND is inquiring for 100, 55-ton hopper cars.

THE BUFFALO, ROCHESTER & PITTSBURGH is inquiring for 1,000 gondola cars.

THE CUDAHY PACKING COMPANY, Chicago, is inquiring for 200, 40-ton refrigerator cars.

THE CINCINNATI, INDIANAPOLIS & WESTERN has placed an order for 209 composite gondola cars with the American Car & Foundry Co.

THE PENNSYLVANIA has bought trucks of 70 tons' capacity for 10,000 freight cars. These trucks are to be placed under 50-ton cars at the Altoona shops.

THE HOCKING VALLEY has equally divided an order for repairs to 500 composite gondola cars between the shops of the Pressed Car Company and the Greenville Steel Car Company.

THE ATCHISON, TOPEKA & SANTA FE, reported in the *Railway Age* of September 23 as inquiring for 50 caboose cars, has ordered this equipment from the American Car & Foundry Company.

THE CHICAGO, ROCK ISLAND & PACIFIC has awarded a contract to the Western Steel Car & Foundry Company for repairs to 100 furniture cars, 100 wooden box cars and 200 steel frame box cars.

THE CHICAGO & NORTH WESTERN, reported in the *Railway Age* of September 30 as inquiring for 800 gondola cars and 200 flat cars has ordered this equipment from the General American Car Company.

THE ATLANTIC COAST LINE, reported in the *Railway Age* of September 16 as inquiring for 2,000 box cars of 40 tons' capacity has ordered this equipment from the Standard Tank Car Company.

THE ATCHISON, TOPEKA & SANTA FE is expected to soon place orders for 2,000 refrigerator cars of 40 tons' capacity, 1,000 auto-

mobile cars of 40 tons' capacity, 500 double-deck stock cars of 40 tons' capacity, 1,000 box cars of 40 tons' capacity, and 500 coal cars of 50 tons' capacity.

Passenger Cars

THE BALTIMORE & OHIO is inquiring for 30 baggage cars.

THE CENTRAL OF GEORGIA is inquiring for 50 coaches, 10 baggage-express cars and 5 combination passenger and baggage cars.

Iron and Steel

THE ERIE has placed orders for 37,500 tons of 100-lb. rail.

THE LEHIGH VALLEY has ordered 20,000 tons of 136-lb. rail from the Bethlehem Steel Company.

THE CHICAGO, BURLINGTON & QUINCY has ordered 15,000 tons of rails from the Illinois Steel Company.

THE ILLINOIS CENTRAL has made reservations divided with various steel companies for 60,000 tons of rail.

THE UNION PACIFIC is inquiring for 135 tons of structural steel for a storage tank at Council Bluffs, Iowa.

THE NEW YORK, ONTARIO & WESTERN has ordered 4,000 tons of 90-lb. rail from the Bethlehem Steel Company.

THE DELAWARE & HUDSON has ordered 10,000 tons of 90-lb. rail from the Bethlehem Steel Company for 1923 delivery.

THE CHICAGO, INDIANAPOLIS & LOUISVILLE has placed an order with the Illinois Steel Company for 3,000 tons of steel rails.

THE NEW YORK, CHICAGO & ST. LOUIS has issued an inquiry for its requirements in axles and steel bars for the next six months.

THE DELAWARE, LACKAWANNA & WESTERN has ordered 15,000 tons of rail from the Bethlehem Steel Company, including 101-lb. and 105-lb. sections.

THE NEW YORK, NEW HAVEN & HARTFORD has reserved space with the Bethlehem Steel Company for 25,000 tons of 107-lb. rail, for delivery in the early part of 1923.

THE VIRGINIAN RAILWAY, reported in the *Railway Age* of September 30 as inquiring for 300 tons of steel for bridges, has ordered this tonnage from the Virginia Bridge & Iron Co.

THE PERE MARQUETTE has divided an order for 15,000 tons of rails equally between the Bethlehem Steel Company, the Illinois Steel Company and the Inland Steel Company.

THE UNION PACIFIC has placed orders for 60,000 tons of rails of which the Colorado Fuel & Iron Company received a contract for 20,000 tons and the Illinois Steel Company, 40,000 tons.

THE CHICAGO & EASTERN ILLINOIS, reported in the *Railway Age* of September 23, as about to place an order with the Illinois Steel Company for 5,000 tons of rails, has placed this order.

THE GREAT NORTHERN has placed an order for 10,000 tons of steel rails with the Illinois Steel Company and 5,000 tons each with the Inland Steel Company and the Bethlehem Steel Company.

THE SOUTHERN RAILWAY has ordered 40,000 tons of rail from the Tennessee Coal, Iron & Railroad Company. Most of the rail will be 100-lb. sections for delivery during the first six months of 1923.

THE CHESAPEAKE & OHIO has placed orders for 24,500 tons of rail for 1923 delivery as follows: Inland Steel Company, 7,500; Illinois Steel Company, 7,500; Carnegie Steel Company, 4,500; and Bethlehem Steel Company, 5,000 tons.

THE ATCHISON, TOPEKA & SANTA FE has ordered 64,000 tons of rails, divided as follows: 25,000 tons, Illinois Steel Company; 25,000 tons, Colorado Fuel & Iron Company; 11,000 tons, Inland Steel Company; and 3,000 tons, Bethlehem Steel Company.

THE ILLINOIS CENTRAL has placed an order with the American Bridge Company for 177 tons of structural steel for its bridge

over the Tradeover river, Sturgis, Ky. This same company has been inquiring for 178 tons of structural steel for deck plate girder spans to be used at Paducah, Ky.

THE BALTIMORE & OHIO has placed orders for 52,000 tons of steel rail for delivery during 1923, as follows: Carnegie Steel Company, 23,000 tons; Illinois Steel Company, 7,000; (2,000 tons included for Baltimore & Ohio Chicago Terminal Railroad); Cambria Steel Company, 12,000, and Bethlehem Steel Company, 10,000.

THE NEW YORK CENTRAL reported in the *Railway Age* of September 23, as inquiring for 200,000 tons of rail has placed orders for 194,300 tons for New York Central lines as follows: Illinois Steel Company 74,500 tons, Carnegie Steel Company 16,464, Bethlehem Steel Company 85,036, Inland Steel Company 15,800 and Cambria Steel Company 2,500 tons.

THE PENNSYLVANIA RAILROAD has ordered 170,000 tons of rail for 1923 delivery as follows: U. S. Steel Corporation 78,000 tons, Cambria Steel Company 37,000, Bethlehem Steel Company 37,000, Lackawanna Steel Company 9,000, and Inland Steel Company 9,000. Most of the above will be 130 lb. sections and 8,000 tons are for use on the Long Island Railroad and the balance are for use on the Pennsylvania Lines.

Machinery and Tools

THE CHICAGO, MILWAUKEE & ST. PAUL has ordered two 3-ton hoists from the Shepard Electric Crane & Hoist Co.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered a 36-in. planer and a 36-in. lathe from the Niles-Bement-Pond Company.

THE CRUCIBLE STEEL COMPANY has ordered a 90-in. driving wheel lathe, also a 96-in. 600-ton wheel press from the Niles-Bement-Pond Company.

THE ILLINOIS CENTRAL has placed orders for about \$70,000 worth of machine tool equipment in addition to that reported in the *Railway Age* of September 16.

THE ILLINOIS CENTRAL's orders for machine tools placed recently include a car wheel lathe and two combination turning and axle lathes from the Niles-Bement-Pond Company.

THE ATCHISON, TOPEKA & SANTA FE has ordered a 150-ton overhead electric traveling crane for its Albuquerque, N. M., shop from the Morgan Engineering Company, Alliance, Ohio.

Track Specialties

THE SOUTHERN PACIFIC is inquiring for approximately 15,000 tons of tie plates.

THE BALTIMORE & OHIO is inquiring for 7,000 tons of tie plates and 15,000 kegs of track spikes.

Signaling

THE BROOKLYN RAPID TRANSIT COMPANY has placed an order with the General Railway Signal Company for a 36-lever interlocking machine to be installed at Queensborough Plaza, Brooklyn, N. Y. This order also includes motor train stops, color light signals, relays, transformers, etc.

THE PHILADELPHIA & READING has awarded a contract to the Union Switch & Signal Company for the complete installation of an electro-pneumatic interlocking plant at Harrisburg, Pa. The plant will ultimately control all of the switches and signals governing movement approaching and passing through the terminal area, and the interlocking machine has 32 working levers, but is of sufficient capacity to take care of both the present trackage arrangement and the future layout.

THE CHICAGO, BURLINGTON & QUINCY has awarded a contract to the Federal Signal Company for the complete installation of two sections of automatic semaphore signaling and two sections of color light signaling, the first consisting of 48 semaphore signals between Arapahoe, Neb., and Indianola, 28 miles, and 32 semaphore signals between Bluff Siding, Wis., and Lytle, 17 miles; and the latter, consisting of 64 color light signals between Hannibal, Mo., and Louisiana, 27 miles, and 17 color light signals between Quincy, Ill., and Eubanks, 7 miles.

Supply Trade News

The Bridgeport Brass Company, Bridgeport, Conn., has opened an office in the General Motors building, Detroit, Mich., with Frank H. Longyear as district manager.

The F. S. Pearson Engineering Corporation, New York City, has reestablished its department for industrial management and technical auditing of industries and public utilities.

The Brown Hoisting Machinery Co., Cleveland, Ohio, has placed its conveyor sales in charge of **E. P. Sawhill**, who has had nearly 30 years' engineering and selling experience on this type of equipment.

The Pan-American Equipment Company, New Orleans, La., has been organized by **R. L. Wilson**, formerly of the Mid-Continent Equipment & Machinery Company, St. Louis, Mo., to engage in the sale of general equipment including cars, locomotives and track accessories.

John J. Kehoe, until recently in the railway sales department of the Texas Company, New York, has been appointed New York representative of **Warren Corning & Co.**, Chicago. Mr. Kehoe's headquarters are in the company's office which was recently opened at 1 Madison avenue, New York City.

The Pawling & Harnischfeger Co., Milwaukee, Wis., has appointed new agents for its machine tool line as follows: **The Cadillac Machinery Co.**, Detroit, Mich.; **the Cleveland Duplex Machinery Co.**, Cleveland, Ohio., and **the Seifreut-Woodruff Company** with offices at Dayton and Cincinnati, Ohio.

Herbert C. Follinger, manager of the Chicago office of the Chain Belt Company, Milwaukee, Wis., died of pneumonia at his home in Chicago, on September 27, at the age of 38. Mr. Follinger became associated with the Chain Belt Company in 1914, and in 1916 was appointed district manager for the Chicago territory.

The Johns-Manville, Inc., New York City, has been appointed joint selling agents by the H. H. Robertson Company, Pittsburgh, Pa., and in future all asbestos protected metal roofing, siding accessories and ventilators will be manufactured and shipped from the plant of H. H. Robertson Company at Ambridge near Pittsburgh. Hereafter, in the manufacture of asbestos protected metal products by H. H. Robertson Co., Johns-Manville asbestos saturated felts will be used. Asbestos protected metal is largely used by all industry for conditions where an unprotected metal or other equally perishable roofing would quickly disintegrate.

Trade Publications

ELECTRIC FURNACES.—Baily electric furnaces for melting non-ferrous metals are described in a six-page folder issued by the Electric Furnace Company, Salem, Ohio. The folder also lists and illustrates a large number of products, for the manufacture of which the electric furnace is most suitable.

MULTI-SPEED MOTORS.—Applications of Watson multi-speed motors for adjustable speed control on alternating current poly-phase circuits are described in a two-color, illustrated, 12-page bulletin issued by the Mechanical Appliance Company, Milwaukee, Wis. These motors are designed to run at any one of four different speeds namely, 600, 720, 900 or 1,200 r.p.m.

DAYLIGHT THE NATURAL ILLUMINANT.—The principles of natural illumination are presented in an attractive manner in a 48-page booklet published by the Skybryte Company, Cleveland, Ohio. This treatise also combines the discussion of methods of illumination with its influence on the efficiency of workmen. The book is well illustrated and carefully written.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company has awarded a contract to Joseph E. Nelson & Sons for the construction of a lavatory building at San Bernardino, Cal., at an estimated cost of about \$60,000.

ATCHISON, TOPEKA & SANTA FE.—This company will construct a 20,000-ton storage ice plant at Bakersfield, Cal., which works will include the purchase of some additional property and rearranging of tracks to extend the yard facilities. The work is estimated to cost \$466,837. This company is also contemplating rebuilding its ice plant at Needles, Cal.

ERIE.—The Interstate Commerce Commission has issued a certificate authorizing the construction of a line from a point on the main line near Sparrowbush, N. Y., to a connection with the main line near Lackawaxen, Pa., 20.8 miles.

GULF, COLORADO & SANTA FE.—This company will construct a two-story fireproof freight house 60 ft. by 301 ft. with structural steel frame, fireproofed with concrete, concrete floors, brick wall and steel doors and sash at Dallas, Tex., to cost \$200,000.

ILLINOIS CENTRAL.—This company has awarded contract to Joseph E. Nelson & Sons, Chicago, for the laying of pipe lines and the construction of a tank for water service facilities at Ramsey, Ill.

ILLINOIS CENTRAL.—This company, which was reported in the *Railway Age* of September 23 as contemplating improvements to its water facilities, has awarded contracts as follows: At Peosta, Iowa, to Miller Artesian Well Company, Chicago; at Kinmunday, Ill., and Pana, to Fairbanks, Morse & Co.; at Ramsey, to Joseph E. Nelson & Sons; at Memphis, Tenn., and Champaign, Ill., to Layne & Bowler. A contract for the extension of passing tracks at Marissa, Ill., has been awarded to M. L. Windham, Centralia, Ill. A contract for passing tracks at Dowell, Ill., has been let to Blythe Brothers, and at Lenzberg, to Windt. The company will construct passing tracks at Marion, Ill., and Cambria with its own forces. A contract for additional storage tracks at Manchester, Iowa, has been let to P. E. Schugart, Freeport, Ill. This company has also awarded contracts for the extension of passing tracks as follows: At Baton Rouge, La., \$50,000, to Colley-Allelo; at Gardere, \$12,000, and at Burnside, \$18,000, to J. W. Garig; at Gramercy, La., \$20,000, to Fred Gardner; and at Harrison, Miss., \$30,000, to J. W. Noble. A contract has been let to F. Gardner for the construction of passing tracks at Reserve, La., to cost \$46,000, and to W. L. Hicks for the construction of yard tracks and engine tracks at Natchez, Miss., to cost \$12,000. This company has also awarded a contract to Woods Brothers Construction Company of Lincoln, Neb., for the construction of six standard current retards and 27 Bignell anchor piles to protect embankment and bridge abutments across the Mississippi river at Council Bluffs, Ia.

ILLINOIS CENTRAL.—This company has awarded a contract to B. F. Davis, Memphis, Tenn., for the alteration and addition to the frame passenger and freight station at Ponchatoula, La.

LOUISIANA SOUTHERN.—This company has been ordered by the Louisiana Public Service Commission to reconstruct and rehabilitate approximately two miles of its line which was destroyed in April by a break in the Mississippi river levee near Poydras Junction, La.

MISSOURI, KANSAS & TEXAS.—This company has awarded a contract to the Sumner Sollitt Company, San Antonio, Tex., for the extension of the freight station at Fort Worth, Tex.

MISSOURI PACIFIC.—This company, reported in the *Railway Age* of September 23 as receiving bids for the construction of a car repair shop at Kansas City, Mo., has awarded the contract to Jerome Moss & Co., Chicago.

PENNSYLVANIA.—See article on another page entitled "Pennsylvania System to Make Extensive Additions to Altoona Works."

Railway Financial News

CHICAGO & ALTON.—*Call for Deposit of Bonds.*—F. H. Ecker, chairman of the protective committee representing the 3½ per cent first lien 50-year bonds, has issued a statement calling attention to the announcement of the receivers of the road that an application will be made to the court for the issuance of receiver's certificates and that payment of the October 1 interest instalment on the 3 per cent bonds will be deferred temporarily. The committee requests the immediate co-operation of the holders of the 3½ per cent bonds and the deposit of these bonds with the Farmers Loan & Trust Company under the deposit agreement which has been prepared.

CHICAGO, ROCK ISLAND & PACIFIC.—*Equipment Trusts Offered.* Hambleton & Co. are offering \$1,279,000 6 per cent equipment trust certificates, due 1925-35, at prices to yield from 5.50 per cent to 5.75 per cent.

DELAWARE, LACKAWANNA & WESTERN.—*30,000 Shares Sold Privately.*—A syndicate headed by Charles D. Barney & Co., New York, has bought and resold privately a block of slightly over 30,000 shares of stock. The purchase involved more than \$5,000,000. The disposition of this stock is believed to have been a major factor in the seven-point rise to 142 in Lackawanna stock in Tuesday's market.

GREEN BAY & WESTERN.—*Authorized to Abandon Branch.*—The Interstate Commerce Commission has issued a certificate authorizing the abandonment of operation of a branch line between Marshland and La Crosse, Wis.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—*Authorized to Issue Bonds.*—The Interstate Commerce Commission has authorized an issue of \$747,000 of first consolidated mortgage 5 per cent gold bonds to be sold at not less than 98, to provide for the payment of a like amount of bonds maturing January 1.

NEW YORK, CHICAGO & ST. LOUIS.—*Equipment Trust Authorized.*—The Interstate Commerce Commission has authorized the issuance of \$3,150,000 of 5 per cent equipment trust certificates to be sold at not less than 98.

NEW YORK, NEW HAVEN & HARTFORD.—*Interest on Debentures.*—The Listing Committee of the New York Curb Exchange has been notified by the Equitable Trust Company that accrued interest, due October 1, 1922, on the New Haven extended 7 per cent debentures of 1925 (European franc issue) will be paid on and after that date at the office of the Bankers' Trust Company.

PERE MARQUETTE.—*Dividends Declared.*—This company has declared an extra dividend of 1 per cent on the 5 per cent preferred stock and the regular quarterly dividend of 1¼ per cent on the 5 per cent prior preference and the 5 per cent preferred stocks, all payable November 1 to stock of record October 14.

The declaration of 1 per cent extra by the Pere Marquette on the 5 per cent preferred stock is made on account of the arrears of the cumulative dividends on said preferred stock. This reduces the amount of such arrears to 2 per cent.

SEABOARD AIR LINE.—*Asks Authority for Equipment Trust.*—This company has applied to the Interstate Commerce Commission for authority for the issuance of \$2,560,000 of 5½ per cent equipment trust certificates which have been sold to Freeman & Co., New York, at 96.63.

ST. LOUIS-SAN FRANCISCO.—*Asks Authority for Equipment Trust.*—This company has applied to the Interstate Commerce Commission for authority to issue \$6,000,000 of 5 per cent equipment trust certificates to be sold to a number of banks at 96.

TENNESSEE.—*Authorized to Issue Securities.*—The Interstate Commerce Commission has authorized an issue of \$600,000 of first mortgage 6 per cent, 15-year gold bonds, part to be pledged as security for certain promissory notes and the remainder exchanged for outstanding first mortgage bonds and matured interest coupons. The company was also authorized to issue \$100,000 of general mortgage bonds and three promissory notes amounting to \$142,249.

TENNESSEE CENTRAL.—*Authorized to Issue Securities.*—The Interstate Commerce Commission has authorized this company to issue \$937,000 of first mortgage 6 per cent gold bonds to be pledged with the Secretary of the Treasury as part collateral for a loan from the government and to assume obligation and liability in respect of \$636,866 of equipment trust certificates also to be pledged with the Secretary of the Treasury.

Treasury Payments to Railroads

Since last announcement, dated August 31, 1922, payments under Sections 204, 209, and 210 of the Transportation Act, 1920, as amended, have been made by the Treasury as follows:

Section 204:	
Bridgeton & Saco River Railroad Company.....	\$15,359.93
Cazenovia Southern Railroad Company.....	7,187.52
Illinois Northern Railway.....	202,509.43
Intermountain Railway Company.....	20,739.20
Lime Rock Railroad Company.....	10,441.91
Moscow, Camden & San Augustine Railroad Company....	7,168.23
New Castle & Ohio River Railway Company.....	1,128.29
Sandy River & Rangeley Lakes Railroad Company.....	52,585.11
Statenville Railway Company.....	7,178.03
Susquehanna & New York Railroad Company.....	20,271.48
Wabash, Chester & Western Railroad Co.....	37,939.95
Section 209:	
Central West Virginia & Southern Railroad Company.....	8,574.89
Central Vermont Railway Company.....	40,148.63
Chicago, St. Paul, Minneapolis & Omaha Railway Company	368,096.82
Detroit & Mackinac Railway Company.....	61,678.28
Ft. Smith, Subiaco & Rock Island Railroad Company....	5,059.23
Georgia, Southern & Florida Railway Company.....	366,737.96
Minneapolis Eastern Railway Company.....	2,139.63
Mobile & Ohio Railroad Company.....	605,735.85
New York, Ontario & Western Railway Company.....	95,010.33
Owasco River Railway.....	5,200.42
Susquehanna & New York Railroad Company.....	29,950.61
Tennessee, Alabama & Georgia Railroad Company, Receiver	40,359.66
Trans-Mississippi Terminal Railroad Company.....	21,950.23
Section 210:	
The Seaboard-Bay Company.....	1,100,000.00
Total	\$3,133,151.62

Total payments to September 30, 1922:

(a) Under Section 204, as amended by Section 212 for reimbursement of deficits during Federal Control:	
(1) Final payments, including partial payments previously made.....	\$3,549,185.18
(2) Partial payments to carriers as to which a certificate for final payment has not been received by the Treasury from the Interstate Commerce Commission	1,178,102.34
Total payments a/c reimbursement of deficits	\$4,727,287.52
(b) Under Section 209, as amended by Section 212 for guaranty in respect to railway operating income for first six months after Federal Control:	
(1) Final payments, including advances and partial payments previously made	\$106,771,419.16
(2) Advances to carriers as to which a certificate for final payments has not been received by the Treasury from the Interstate Commerce Commission	213,600,672.00
(3) Partial payments to carriers as to which a certificate for final payment has not been received, as stated above	127,683,722.09
Total payments account of said guaranty	448,055,813.23
(c) Under Section 210 for loans from the revolving fund of \$300,000,000 therein provided	
Total	\$768,604,905.77

Repayments of loans have been made to the amount of \$83,945,336.

Dividends Declared

Delaware, Lackawanna & Western.—3 per cent, quarterly, payable October 20 to holders of record October 7.
El Paso & Southwestern.—1½ per cent, quarterly, payable October 3 to holders of record September 20.
Meadville, Conneaut Lake & Linesville.—2 per cent, payable October 1 to holders of record September 20.
New London Northern.—2¼ per cent, quarterly, payable October 2 to holders of record September 16.
Pittsburgh & West Virginia.—Preferred, 1½ per cent, quarterly, payable February 28 to holders of record February 21.

Trend of Railway Stock and Bond Prices

	Oct. 3	Last Week	Last Year
Average price of 20 representative railway stocks	72.58	72.01	57.16
Average price of 20 representative railway bonds	88.70	89.34	76.58

Railway Officers

Executive

Edgar P. Earle has been elected president of the East Tennessee & Western North Carolina with headquarters at Johnson City, Tenn. **J. E. Vance** has been elected vice-president and treasurer.

D. Upthegrove, whose promotion to acting president of the St. Louis Southwestern with headquarters at St. Louis, Mo., was reported in the *Railway Age* of August 19, has been elected president to succeed **J. M. Herbert**, deceased.

G. C. Jones, assistant to the president of the Grand Trunk, with headquarters at Toronto, has been assigned to perform such work as may be designated by the vice-president and general manager and the position of assistant to the president has been abolished.

E. L. Whitney, assistant general freight agent of the New York Central, with headquarters at Chicago, has been appointed assistant to the vice-president in charge of industrial development of the Indiana Harbor Belt, the Chicago Junction and the Chicago River & Indiana, with the same headquarters.

E. E. Nash, formerly vice-president and general manager of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn., who resigned on June 15, 1922, to become western representative of the American Locomotive Company, with headquarters at Chicago, and whose photograph and sketch appeared in the *Railway Age* of June 17, has returned to the Minneapolis & St. Louis as vice-president in charge of operation and maintenance.

Financial, Legal and Accounting

H. R. Martin, whose promotion to general attorney of the Grand Trunk, Western lines, with headquarters at Detroit, Mich., was reported in the *Railway Age* of September 16, was born February 15, 1881, in Attica township, Lapeer county, Mich. He was graduated from the Detroit College of Law in 1901 and was admitted to the Bar by the Michigan Supreme Court in June of the same year. He practiced law with **H. Geer** and became a member of the law firm of **Geer, Williams, Martin & Butler** in 1905 which company later became **Geer, Martin & Neudorfer**. He will now devote his time exclusively to the Grand Trunk's legal work, having jurisdiction over the Grand Trunk, lines West of Detroit and the St. Clair River, including Michigan, Indiana, Illinois and Wisconsin.

H. L. Lehmkuhle has been appointed general accountant of the New York, Chicago & St. Louis and the Lake Erie & Western, with headquarters at Cleveland, O. **C. L. Peckham** and **A. W. Latham**, assistant auditors of the New York, Chicago & St. Louis, with headquarters at Cleveland, have been appointed assistant controllers of the combined roads, with the same headquarters. **W. H. Elmendorf**, auditor of the Lake Erie & Western, with headquarters at Indianapolis, Ind., has been appointed auditor of disbursements, and **W. W. Cumberworth**, auditor of freight accounts of the Lake Erie & Western, with headquarters at Indianapolis, Ind., has been appointed assistant auditor of freight accounts of the two roads, both with headquarters at Cleveland. The above appointments are the result of the consolidation of the accounting departments of the New York, Chicago & St. Louis and the Lake Erie & Western.

Operating

D. H. Miller, general yardmaster of the Illinois Central at Herrin, Ill., has been promoted to trainmaster, with the same headquarters.

F. M. Allison, superintendent of the East Tennessee & Western North Carolina, has been promoted to general superintendent.

W. W. Shoemaker, road foreman of engines of the Seaboard Air Line, with headquarters at Jacksonville, Fla., has been promoted to trainmaster, with headquarters at Hamlet, N. C., with jurisdiction over Andrews, S. C., and territory north thereof.

E. J. Devans, superintendent of the Buffalo, Rochester & Pittsburgh, with jurisdiction over the entire line, has been reappointed general superintendent. This position, along with several others, was abolished on September 1, 1921, and is now re-established, effective October 1. Other appointments occasioned by the re-establishment of the positions are: **A. B. White**, superintendent, with headquarters at Punxsutawney, Pa.; **M. G. McInerney**, superintendent, with headquarters at Rochester, N. Y.; **F. H. Post**, superintendent, with headquarters at DuBois, Pa.; **T. C. McCarthy**, assistant superintendent, East Salamanca, N. Y.; **J. J. Garin**, chief dispatcher, East Salamanca; **P. N. Boylan**, chief dispatcher, Rochester; headquarters of **H. E. Patterson**, assistant superintendent, East Salamanca, transferred to Rochester.

N. A. Williams, whose promotion to general superintendent of the Los Angeles & Salt Lake, with headquarters at Los Angeles, Cal., was reported in the *Railway Age* of September 16 (page 544), has been promoted to acting general manager, succeeding **W. H. Comstock**, temporarily assigned to other duties. Mr. Williams was born May 29, 1878, at Laclede, Mo., and entered railway service July 22, 1898, as a brakeman on the Chicago, Burlington & Quincy at Brookfield, Mo. On January 28, 1902, he left to become a brakeman on the Denver & Rio Grande and on April 3, 1903, was promoted to conductor. On August 10, 1909, he was promoted to assistant superintendent, which position he held until July 1, 1910, when he was promoted to superintendent. He resigned on May 1, 1914, to engage in private business and re-entered railway service September 1, 1916, as a trainmaster on the Union Pacific at Grand Island, Neb., which position he held until June 1, 1917, when he was promoted to assistant superintendent. On February 22, 1918, he was promoted to superintendent and on December 10, 1921, to acting general superintendent. He was promoted to general superintendent of the Los Angeles & Salt Lake, with headquarters at Los Angeles, Cal., on August 6, 1922, and on October 1 was appointed acting general manager.

Traffic

C. L. Brown has been appointed general agent of the Pere Marquette, with headquarters at San Francisco, Cal., succeeding **E. S. Andrews**, deceased.

L. L. Lapp, chief clerk to the vice-president and general manager of the Gulf, Mobile & Northern, with headquarters at Mobile, Ala., has been promoted to division freight agent, with headquarters at Meridian, Miss.

B. J. Lawless has been appointed commercial freight agent of the Buffalo, Rochester & Pittsburgh, with headquarters at Newark, N. J. **J. C. Gross** has been appointed to a similar position, with headquarters at Pittsburgh, Pa.

J. O. Gill, district freight agent of the Gulf, Mobile & Northern, with headquarters at Mobile, Ala., has been promoted to general freight and passenger agent, with the same headquarters, succeeding **E. W. Ritchie**, resigned to enter the executive department of the Louisville & Nashville, with headquarters at Louisville, Ky.

W. F. Lincoln, whose promotion to general freight agent of the Union Pacific, with headquarters at Los Angeles, Cal., was reported in the *Railway Age* of September 9 (page 491), was born on November 12, 1870, at Baltimore, Md. He entered railway service in May, 1887, in the general freight office of the Southern Pacific at San Francisco, and remained with this company until January 1, 1905. On this date he entered the employment of the San Pedro, Los Angeles & Salt Lake, as a rate clerk, which position he held until No-

vember 15, 1911, when he was promoted to assistant general freight agent. He was holding this latter position at the time of his recent promotion.

Mechanical

B. F. Kuhn, district superintendent of motive power of the New York Central, Lines West, with headquarters at Collinwood, O., has been promoted to assistant superintendent of motive power, Lines West, with headquarters at Cleveland, Ohio.

W. W. Payne has been appointed road foreman of engines of the Seaboard Air Line, with headquarters at Jacksonville, Fla., succeeding **W. W. Shoemaker**, appointed trainmaster of the East Carolina division. **H. M. Agin** has been appointed assistant road foreman of engines, with headquarters at Waldo, Fla.

Engineering, Maintenance of Way and Signaling

A. J. Hammond, assistant chief engineer of the Chicago Union Station Company, with headquarters at Chicago, resigned September 30 to become associated with **James O. Heyworth**, engineer and contractor, Chicago, Ill.

Special

J. G. Hughes, whose promotion to assistant commissioner of taxes of the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan., was reported in the *Railway Age* of September 9 (page 492), was born in 1878, at Oakland, Cal. He entered railway service in 1917 in the valuation department of the Gulf, Colorado & Santa Fe and remained with this company until the latter part of 1918, when he entered the employ of the St. Louis-San Francisco as land appraiser and served in this capacity until the fall of 1919 when he was placed in charge of joint land appraisals, with headquarters at St. Louis, Mo., which position he held until July, 1921. He became land assistant in the valuation department of the Atchison, Topeka & Santa Fe on the latter date and held this position until his promotion to assistant commissioner of taxes.

Donald D. Conn, of Minneapolis, Minn., has been appointed manager of the public relations section of the Car Service Division of the American Railway Association, at Washington, effective on October 1. He takes the place made vacant by the resignation of **A. G. Gutheim**, who left to practice law. Among Mr. Conn's duties will be those of making special studies, from time to time, of such subjects as may require special attention on the part of the Car Service Division, such as the movement of coal, grain, or other important and seasonal commodities. Mr. Conn was formerly head of the traffic department of the Shevlin, Carpenter & Clarke Company of Minneapolis, and later was head of the Transportation Division of the Joint Congressional Commission of Agricultural Inquiry. More recently, Mr. Conn was appointed assistant to **Conrad E. Spens**, federal fuel distributor. Mr. Conn was born at Boston, Mass., but most of his life has been spent in the Middle West. He was educated at the University of Michigan and at Cornell University and after some early training in the railroad business he became general traffic manager of the Shevlin, Carpenter & Clarke Company at Minneapolis in 1916. He has also been chairman of the transportation committees of the Western Pine Manufacturers Association, the Northern Pine Manufacturing Association and a member of the trans-



Donald Conn

portation committee of the National Lumber Manufacturers Association. In May, 1921, he was appointed chief of the transportation division of the Joint Congressional Commission of Agricultural Inquiry.

Obituary

H. G. Sparks, vice-president and general manager of the Gulf, Mobile & Northern, with headquarters at Mobile, Ala., whose death from gangrene of the throat occurred on August 17, was born December 23, 1880, at Muncie, Ind. He graduated from Washington and Jefferson University in 1903, and entered railway service in May, 1905, as a rodman of the Chicago & Eastern Illinois with which company he was consecutively assistant engineer, office engineer, division engineer, assistant superintendent and superintendent until March, 1920. On October 1, 1920, he entered the employ of the Gulf, Mobile & Northern as operating assistant to the president, with headquarters at Mobile, Ala., and on November 1 of the same year he was promoted to general manager, with the same headquarters. Early in 1922 he was elected vice-president and general manager, with the same headquarters, which position he was holding at the time of his death.

H. Visscher, treasurer and paymaster of the Kansas City Southern, with headquarters at Kansas City, Mo., and consul for the Netherlands, died on September 21 after a lingering illness due to a complication of diseases. Mr. Visscher was born on April 18, 1871, in Deventer, Holland, and came to the United States in 1893 as a representative of the Dutch interests that financed the Missouri, Kansas & Texas Trust Company and the Kansas City, Pittsburgh & Gulf, which was reorganized after the receivership under the name of the Kansas City Southern on April 2, 1900. He was assistant treasurer of this company from its reorganization until May 9, 1906, on which date he was promoted to treasurer, the position he was holding at the time of his death. Mr. Visscher was appointed consul for the Netherlands in Kansas City in 1915, and was the first consul for that country to be located permanently in Kansas City.



H. Visscher

C. T. Ames, superintendent of the Des Moines Valley division of the Chicago, Rock Island & Pacific, with headquarters at Des Moines, Iowa, whose death from the collision of a track motor car, on which he was riding, and an automobile truck, was reported in the *Railway Age* of September 30 (page 634), was born November 5, 1875, at Boston, Mass. Mr. Ames entered railway service in October, 1892, as secretary to the general freight agent of the Fitchburg (Boston & Maine) at Boston. On January 13, 1903, he entered the service of the Chicago, Rock Island & Pacific as secretary to the superintendent of the Illinois division at Rock Island, Ill., since which he has been chief clerk to the superintendent of the Illinois division, service inspector in the general manager's office, with headquarters at Chicago, assigned to special work in the general superintendent's office, with headquarters at Des Moines, Iowa, transportation clerk in the general manager's office at Chicago, chief clerk to the vice-president in charge of operation, superintendent of the Chicago Terminal division, with headquarters at Chicago, trainmaster of the Des Moines Valley division, with headquarters at Des Moines, due to the consolidation of the division, and superintendent of the Des Moines Valley division, with the same headquarters.